March, 1952

EDISON ELECTRIC INSTITUTE BULLETIN

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BUSINESS & INDUSTRY

	Page
American Enterprise, Freedom's First Line of Defense — HORACE P. LIVERSIDGE	65
Cleveland—Lakeside Setting for Institute's Twentieth Annual Convention	67
Power for Freedom — GEORGE M. GADSBY	71
The Why of Area Development — PAUL V. HAYDEN	73
Components of a Strong Public Relations Program — H. S. METCALFE	77
The Big Storm — HARRY S. FURLONG	80
Operation and Maintenance of Metalclad Switchgear — R. M. PENNYPACKER	85
A-C Resistance of Pipe-Cable Systems with Segmental Conductors	87
Recent EEI Publications	89
Transmission and Distribution Committee Meeting — J. A. PULSFORD	90
Meter and Service Committee Meeting — F. A. REDDING	91
Electrical Equipment Committee Meeting — J. H. FOOTE	92
Prime Movers Committee Meeting — G. V. WILLIAMSON	93
Personals	94
Conventions and Meetings	96

PUBLISHED MONTHLY BY EDISON ELECTRIC INSTITUTE

ELECTRICAL RESEARCH STATISTICS
THE ELECTRIC LIGHT AND POWER INDUSTRY

Current Statistical Data Covering 100 Per Cent of Industry

December, 1950-1951

SOURCE AND DISPOSAL OF ENERGY—MONTH OF DECEMBER

	1951	1950	%
GENERATION* (Net)			
By Fuel Burning Plants	24,010,757,000	21,970,243,000	+ 9.3
By Water Power Plants	9,131,855,000	8,689,703,000	+ 5.1
Total Generation	**33,142,612,000**	**30,659,946,000**	**+ 8.1**
Add—Net Imports Over International Boundaries	162,941,000	124,439,000	+30.9
Less—Company Use	117,481,000	132,756,000	−11.5
Less—Energy Used by Producer	684,064,000	629,028,000	+ 8.7
Net Energy for Distribution	**32,504,008,000**	**30,022,601,000**	**+ 8.3**
Lost and Unaccounted for	4,229,087,000	4,382,272,000	− 3.5
Sales to Ultimate Customers	**28,274,921,000**	**25,640,329,000**	**+10.3**

CLASSIFICATION OF SALES

NUMBER OF CUSTOMERS—As of December 31			
Residential or Domestic	39,224,386	37,532,549	+ 4.5
Rural (Distinct Rural Rates)	1,658,723	1,596,146	+ 3.9
Commercial or Industrial:			
Small Light and Power	5,528,425	5,466,181	+ 1.1
Large Light and Power	247,532	234,728	+ 5.5
Other Customers	162,884	156,690	+ 4.0
Total Ultimate Customers	**46,821,950**	**44,986,294**	+ 4.1
KILOWATTHOUR SALES—During Month of December			
Residential or Domestic	7,439,484,000	6,559,738,000	+13.4
Rural (Distinct Rural Rates)	520,196,000	478,034,000	+ 8.8
Commercial or Industrial:			
Small Light and Power	4,975,580,000	4,443,350,000	+12.0
Large Light and Power	13,724,374,000	12,595,651,000	+ 9.0
Street and Highway Lighting	347,069,000	320,865,000	+ 8.2
Other Public Authorities	698,874,000	638,284,000	+ 9.5
Railways and Railroads:			
Street and Interurban Railways	315,872,000	333,792,000	− 5.4
Electrified Steam Railroads	210,676,000	223,628,000	− 5.8
Interdepartmental	42,796,000	46,987,000	− 8.9
Total to Ultimate Customers	**28,274,921,000**	**25,640,329,000**	**+10.3**
Revenue from Ultimate Customers	**$501,340,100**	**$458,072,100**	**+ 9.4**

RESIDENTIAL OR DOMESTIC SERVICE

AVERAGE CUSTOMER DATA—For 12 months ended December 31			
Kilowatthours per Customer	2,004	1,830	+ 9.5
Average Annual Bill	$56.31	$52.70	+ 6.9
Revenue per Kilowatthour	2.81¢	2.88¢	− 2.4

* By Courtesy of the Federal Power Commission.

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EDISON ELECTRIC INSTITUTE BULLETIN

Volume 20 MARCH, 1952 No. 3

American Enterprise, Freedom's First Line of Defense

By Horace P. Liversidge

Chairman of the Board, Philadelphia Electric Company

An address before the Chamber of Commerce of Greater Philadelphia, Philadelphia, Pa., February 14, 1952

Mr. Liversidge delivered the following address before the annual meeting of the Chamber of Commerce of Greater Philadelphia, during which he received the William Penn Award, a national honor bestowed by the Chamber upon the American whose contributions to economic development through industry have been decisive. Previous recipients are Paul G. Hoffman, Charles E. Wilson, and General Robert E. Wood.

The first Philadelphian to achieve the William Penn Award, Mr. Liversidge was similarly honored last year for his contributions to the business life of Philadelphia when he received the Powell Award, consisting of a $10,000 cash prize, which he donated to his alma mater, Drexel Institute of Technology.

FROM the moment I was notified that the committee had selected me as recipient of the William Penn Award I've been in somewhat of a daze. Over and over again I have at least mumbled to myself, how did this all come about? Of course, I feel highly honored, and I accept the award with a deep sense of humility. Yet, outweighing all personal feelings, there is a greater satisfaction in the knowledge that it must reflect a sincere public tribute to an organization of more than the 8000 co-workers comprising the company with which I have been associated these many years.

In the span of little more than a half century, the growth in the use of electric power has brought about an industrial renaissance so stupendous as to be beyond the imagination of those of us who were a part of this industry in those early days. As many of you may know, my own personal experience in it stems from those small beginnings.

As I look back on that initial period, the so-called electric utility industry was a mere infant, struggling to make the revolutionary ideas of the "Wizard of Menlo Park" an economic practicality. Well can I remember a comment Mr. Edison made in his latter years that always seemed appropriate to me in describing those early struggles. "I am glad," he said, "that the eight hour day had not been invented when I was a young man. If my life had been made up of eight hour days, I do not believe I could have accomplished a great deal."

And so, with all the glamor that surrounds the achievements of our modern age of electric power, those of us who have had a part in this growth know that, while it is an example of the American enterprise system in its finest form, it has been built principally on the foundation of long hours of hard work and initiative on the part of the many individuals cooperating to do a day-to-day job.

Of one thing we may be certain, the electrical age has given to man a standard of living never before realized. It has demonstrated in big and little things the full value of concerted cooperation in the realm of personalized service. And service, let me remind you, has always meant to me industry, respect for authority, and recognition of the rights of others. If the future reflects the truths of this philosophy, the fundamental principles of our Constitution will have been retained.

I often hear some of the younger generation, as they scan the record of our great progress, ask the question, what is there left for us to do? What a question to ask, when the human race stands on the threshold of the newborn atomic age, so great in its possibilities as to dwarf into insignificance the results of centuries of past endeavor. No one can possibly foretell the end results of the experiments and developments now under way. We may well pause to ponder the outcome.

For good or evil, humanity must decide whether these new and untried forces shall be used for the betterment of man's moral and social standards or the ultimate destruction of all the progress for which we have fought and worked these many years.

Today our nation is proof that the basic truths on which it was founded work. The pattern of the future is being moulded today. What we do tomorrow will largely determine the kind of world our children and our children's children will live in.

However, with all the grave responsibilities that lie ahead, with all the problems that must be met and solved, the social fabric of our political and economic system still seems secure. With all the dangers and pitfalls of past mistakes of governmental bodies, errors in judgment, blunders in major administrative policies, I am still confident that the time and tide of current events, together with the inherent common sense

of a free American people, will have sufficient impact on national thinking eventually to correct the trend toward the dangerous shoals ahead.

Even the electric light and power industry, with all its spectacular growth and its great contributions to this nation's present standard of living, has had its full share of difficulties arising from elements within our national government. The quasi-socialistic policies voiced by many government spokesmen are diametrically opposed to private enterprise. Industry is repeatedly the target attacked by political opportunists and other headline hunters. It would do us well to ponder the fact that America's industrial capacity is the strongest bulwark against communism in the world today. The products of free enterprising, American industry, are freedom's first line of defense.

Can it be that Americans are losing faith in their system of government? I think not! Or is it that many have been deluded down the primrose path of public ownership by false piety and lofty promises of something for nothing? That, I think, is the more reasonable assumption. The point of difference has been sharply drawn and should be self-evident to every thinking citizen.

Traditionally, investor-owned utilities have stood foursquare against any encroachment of government. During the past several years in particular, we have proclaimed and emphasized the industry's position to an ever larger public through cooperative advertising in the press, radio, and television. This program effectively tells the private enterprise story of "America's business-managed, taxpaying electric light and power companies."

Briefly, let me contrast the vast differences between economical private enterprise and costly government enterprise!

TVA is an outstanding example, widely publicized and woefully misrepresented. Started originally as a river development, flood control, navigation, and irrigation program, TVA included electricity merely as an incidental by-product. Now, however, TVA emerges as a full-blown power system which soon will be producing half of its output from newly constructed steam plants that are being built with hundreds of millions of dollars of taxpayers' money. Is it any wonder that taxpaying, privately-owned electric companies cannot compete with subsidized kilowatthours?

This project and many more of a similar nature represent a new trend of national thinking, ultra modern perhaps, but let me remind you of a very grave threat to the continuation of our constitutional rights under our well proven American enterprise system.

The concept of freedom and hope of reward—synonymous with our free enterprise system of government—is the great catalyst which has fired the imagination and initiative of modern man to ever greater achievements. It signifies what we commonly label "the American way of life." Its greatest enemy is communism, the antithesis of freedom, epitomizing intellectual bondage shackled to the hammer and sickle of human tyranny. History does not chronicle any nation at any time wherein its peoples had the measure of personal liberty that prevails in these United States. The course of recent history dictates the simple truth that real progress is only possible in the climate of freedom which we, in these United States, are privileged to enjoy.

To this end, every American must do his part. Industry in particular must bear a heavy share of this responsibility. Words alone will not stem the tide of Federal competition. It requires enterprising performance in the role of public service. It requires that industry be implemented by public opinion and educated to the dangers to its future well-being and, indeed, to its very existence.

No businesses are more keenly alive to this than electric companies, and none in this nation today has worked harder, more conscientiously or with greater combined enthusiasm than the company with which I am associated.

Its success has been a measure of Philadelphia's success, its future inextricably bound to the future of this great and growing city. Industrially, Philadelphia is an excellent barometer by which to measure the economic well-being of the nation. The products of the diverse industries located here touch almost every aspect of our lives—the pioneering in new methods to do old things better, in new ways to do new things, all contribute to the economic progress and prosperity of the community and the nation.

The tribute you have given me tonight is one that I shall ever cherish, as a personal honor, yes, but also as one that reflects credit on the men and women I am privileged to represent.

Its acceptance imposes a responsibility to live up to the friendly esteem in which we as a company, as well as citizens of the great community, are held. I assure you we shall spare no effort to merit that approval in the years that lie ahead.

T. A. Busby

T. A. Busby, Vice President and Assistant to the President of the South Carolina Electric and Gas Co., died suddenly on January 9.

A native of Alabama, Mr. Busby received his education at the University of Alabama, University of Chicago, and Georgia School of Technology. After graduating, he enrolled in a student engineering course with the Alabama Power Co., and subsequently spent several years in its meter department. He transferred to the former South Carolina Power Co. at Charleston in 1928 to become head of electric meter operations. After assuming a similar position in 1931 with the Commonwealth and Southern Corp., he returned to South Carolina Power in 1934 as meter engineer.

His promotion to assistant to the general manager of the company was followed in 1945 by election as vice president in charge of operations. Mr. Busby was transferred to Columbia as operating vice president in 1950, upon the merger of South Carolina Power and South Carolina Electric and Gas.

He was recently elected president of the Mid-Southeastern Gas Association at its annual convention in 1951.

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An aerial view of Cleveland's downtown area from the lake front. In the center foreground is the Municipal Stadium, above which is the Mall, surrounded by civic buildings and the Public Auditorium. Dominating the skyline at right is the 52-story Terminal Tower.

Cleveland—Lakeside Setting for Institute's Twentieth Annual Convention

CLEVELAND, an industrial giant of ranking importance in the world, will be the site of the 20th Annual EEI Convention next June 2-4. With its vast technological development bearing witness to the outstanding role played by electricity in the nation's industrial progress, the city should provide an appropriate background for thorough analysis of the vital problems confronting the electric industry today.

The largest city in Ohio and the seventh largest in the United States, it has a heterogeneous population of more than a million people and is a cultural and educational center offering all the attractions and recreational facilities befitting a city of its size.

Cleveland is an interesting study in contrast. On one hand delegates will find the beautifully landscaped parks and residential areas which have made it famous as "The Forest City." On the other, they will discover the great industrial plants and harbor works which are the heart of the city's commercial life. Though retaining the Yankee ingenuity and community spirit fostered by the city's New England founders, Cleveland has also been enriched by the diverse European cultures of the immigrants who flocked there in the 1800's to take jobs in fast-growing industries.

Fine Parks and Residential Areas

On Lake Erie at the mouth of the Cuyahoga River, Cleveland fans out upon a plateau which rises gradually from west of the city to a point some 200 feet above the lake. The winding Cuyahoga has carved the surface of the plateau into various levels which represent prehistoric shores of the river, the highest of which is devoted to fine residential areas such as Shaker Heights, Cleveland Heights, Garfield Heights, and Cuyahoga Heights.

Extending lakeward throughout this region are parks, golf courses, and country clubs, which end at Lake Shore Boulevard. Here begins the Bratenahl residential section, a lovely approach to the city which permits tree-shaded glimpses of Lake Erie. Another belt of parks and golf courses runs through a secondary level of the city, terminating in the business district.

Cleveland, publicized as "the best location in the nation," owes its commercial and industrial importance to its position between the iron regions of the Great Lakes and the coal and oil fields of Pennsylvania and Ohio. This is apparent along the river front with its miles of docks, refineries, ore-loaders, steel mills, and factories. Half the

population of the United States is within a 500-mile radius and overnight rail time of the city, and convenient, modern transportation facilities make Cleveland easily accessible from all parts of the nation.

Compact in Layout

The city is compact in layout, and the shopping district, major hotels, transportation points, amusements, and Public Auditorium are all within a few minutes walking distance of each other and Lake Erie.

Cleveland's public buildings are grouped around the Mall, a 17-acre garden spot which overlooks Lake Erie and extends into the heart of the downtown area. Here are located the $10,000,000 Public Auditorium, Federal Building, Public Library, new Board of Education Building, and Cuyahoga County Court House, as well as the Municipal Stadium seating 83,000 people.

One of the outstanding buildings of its type in the nation, the Public Auditorium contains three theatres, ten halls, and numerous committee rooms. The main hall seats 12,500, the music hall seats 3,000, and the two can be combined so that an audience of 16,000 people can watch action on the 5,000-square-foot stage.

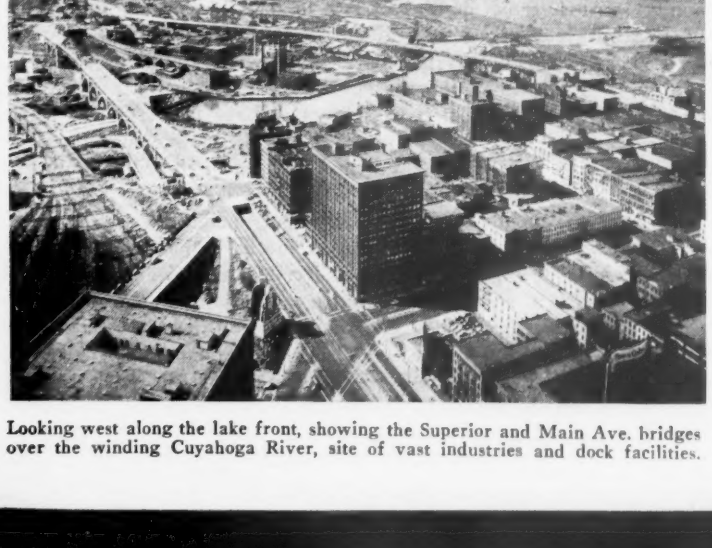
The city, which contains 50 golf courses and over a score of parks, offers horse racing, swimming in Lake Erie, tennis, and boating during summer months. Clevelanders are sports enthusiasts, and the largest crowds ever to see baseball games in this country, including the World Series, have gathered in the Municipal Stadium to root for the home team, the Cleveland Indians. The city also boasts its championship pro football team, the Cleveland Browns, as well as Cleveland's entry in the American Hockey League, the Barons.

Cleveland Public Square, purchased by the Connecticut Land Co. in 1795 for $1.76 and now valued at $20,000,000, with its soldiers and sailors monument, a 125-foot granite shaft.

Cultural and Educational Facilities

Noted for its cultural and educational facilities, Cleveland is the site of Fenn, Ursaline, and Notre Dame Colleges, John Carroll and Western Reserve Universities, and Case Institute of Technology, the latter two occupying high ground overlooking Wade Park. Also bordering the park are the Cleveland Museum of Art and Severence Hall, home of the renowned Cleveland Orchestra, which will entertain delegates during the convention. Other points of interest in the city include the Museum of Natural History, Western Reserve Historical Society, Dunham Tavern, Health Museum, Brookside Zoo, and Nela Park University of Light. In addition, Cleveland has 200 "little theatres."

At the hub of the city's business district is the Public Square, which was purchased by the Connecticut Land Co. in 1795 for $1.76 and which is now valued at $20,000,000. Dominating the square with its soldiers and sailors monument, a granite shaft rising 125 feet, is Cleveland's 52-story Terminal Tower. The seventh tallest building in the world, the other six being in New York City, it has an observation room on the forty-second floor that affords a splendid view of the city. Included in



Looking west along the lake front, showing the Superior and Main Ave. bridges over the winding Cuyahoga River, site of vast industries and dock facilities.

Downtown Cleveland looking east along the lake front and Superior Ave., showing part of the Mall at left.

the Terminal Tower unit are the Union Station, a department store, hotel, and several shops.

After the Revolutionary War, the State of Connecticut gave 500,000 acres of the Western Reserve, a strip of land 120 miles long and 50 miles wide, extending westward from Pennsylvania along the shores of Lake Erie, to colonists whose lands had been destroyed by the British. The rest of the reserve, including the four acres which now form Cleveland's Public Square, were sold to the Connecticut Land Co., of which General Moses Cleaveland was superintendent.

Founding of City

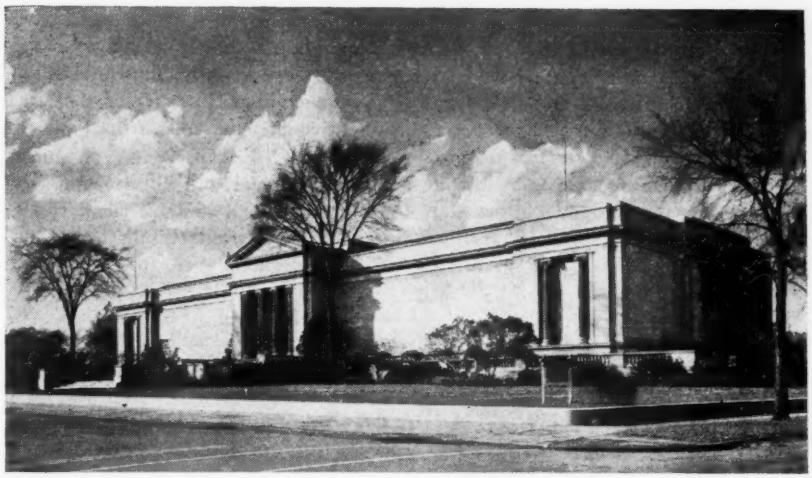
A trading post existed at the mouth of the Cuyahoga River in the Western Reserve as early as 1786. The area was not settled permanently, however, until ten years later when General Cleaveland and a party of 50, after a two month's voyage up the lakes, reached the banks of the Cuyahoga, where a city bearing the general's name was founded. Remaining in the settlement for only a few weeks, the general then went back to his home in Canterbury, Windham County, Conn., and never returned.

The new community grew slowly at first, for most migration in the late eighteenth and early nineteenth centuries followed the path of the Ohio River. Relatively few hardy souls ventured across the marshes along the banks of Lake Erie leading to the city, and many of the settlers who tried to reach it by boat were lost in the squalls that beset the lake.

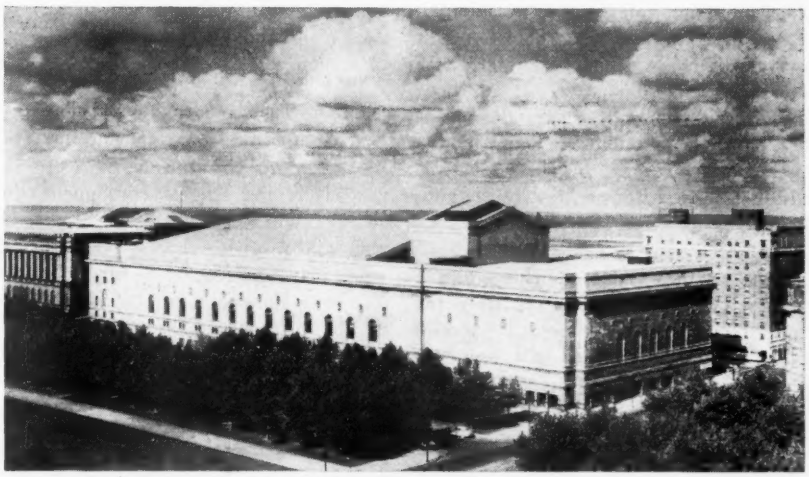
Canal Brings Commercial Expansion

In 1832, however, with completion of the Ohio River-Lake Erie Canal, the city became an outlet for agricultural produce and began to expand rapidly. A commercial war, which came to the point of gunfire, was fought with Ohio City across the Cuyahoga, ending when Cleveland absorbed the rival community. It was also in 1832 that a newspaper printer summarily changed the original spelling of the city's name, Cleaveland. by dropping the first "a" in order to fit the title of *The Cleveland Gazette and Commercial Register* into one line of type.

The building of the canal and subsequent growth of trade and industrial facilities brought Cleveland its first foreign immigrations, Irish to construct the canal and railroads and Germans to



Overlooking Wade Park are the Cleveland Museum of Art (above), Western Reserve University, Case Institute of Technology, and Severence Hall, home of Cleveland Orchestra.



Cleveland's $10,000,000 Public Auditorium, with its three theatres, ten halls, and numerous committee rooms, can seat 12,500 in its main hall and has a 5000-square-foot stage.

Terminal Tower, world's seventh tallest building, has an observation room on the forty-second floor giving a fine view of the city. The Terminal unit includes the rail station.

staff the clothing and blanket factories.

When rich deposits of iron ore were discovered in Minnesota before the Civil War, the city's shrewd traders bought and built ships to transport the ore to Cleveland, where foundries and factories sprang up to manufacture and fabricate steel. In the years following the war, the city became the nation's chief oil refining center, and as new industrial plants began to line the Cuyahoga, waves of immigrants, mostly of Slavic origin, came to work in them, thus establishing the cosmopolitan character of the city's present commercial and cultural life.

Today Cleveland is a community where industrial and cultural progress go hand in hand and, as such, should prove interesting and stimulating to convention delegates.

Nation-Wide Observances Honor Anniversary of Thomas Alva Edison's Birth

MARKING the 105th anniversary of Thomas Alva Edison's birth and his vital contributions to scientific and industrial progress, commemorative observances were conducted last month by service clubs, schools, churches, and industries across the nation. In addition, widespread tribute was paid the inventor on radio and television and by the press. His birthday, February 11, was also proclaimed Edison Day by the governors of 34 states and the mayors of 38 cities.

The commemorative luncheon of the Edison Pioneers served as a pattern for similar luncheons sponsored by service clubs such as Kiwanis, Lions, and Rotary. Other groups, including Zonta International, Optimist International, General Federation of Women's Clubs, and Civitan International, observed Edison's birthday with appropriate presentations.

School and Church Presentations

Assembly programs and displays on the inventor's life and works were arranged by the schools throughout the country which bear Edison's name, as well as by other schools. Where they were available, motion pictures on Edison were shown. Churches also joined in the birthday observances. Sermons honoring Edison's achievements were prepared by Dr. Lloyd E. Foster, Minister of The Old First Church of Newark, and by Dr. Joachim Prinz, Rabbi of Temple B'nai Abraham of Newark, and distributed to approximately 15,000 ministers and 4000 rabbis.

Industrial Participation

Industries which had their beginnings in Edison's works were active in celebrating the inventor's birth. Numerous EEI member companies participated in Edison Day observances, and General Electric Co. featured articles on Edison in all of its employee publications. In addition, General Electric, at its Lighting Institute in Nela Park, Cleveland, presented the sixth annual Edison Science Week, during which more than 2500 northern Ohio high school students saw a recreation of Edison's incandescent light by a veteran glassblower, a stage show displaying "lighting magic," and demonstrations of lighting progress since invention of the electric lamp in 1879. Edison programs were presented in schools and service clubs near General Electric's Schenectady works, and Edison's accomplishments were the subject of radio and television programs both at Nela Park and Schenectady.

Radio and TV Coverage

The Voice of America recorded a special message from the Hon. Charles Edison, son of the inventor, to the Cultural Film Society of Delhi, India, which was presented as a feature part of the society's program on February 11 honoring Edison for invention of the motion picture. The Voice of America also included a recording of Edison's voice and a summary of Edison Day activities in a world news broadcast. In this country, at least 37 radio and television programs paid tribute to Edison, and his birthday was the theme of numerous spot announcements.

Edison features were used extensively by newspapers throughout the country, and stories with accompanying photographs on the Edison Pioneers luncheon appeared in the *New York Times*, *Herald Tribune*, and other newspapers. Four towns, with which the inventor was closely associated, also joined in honoring him: West Orange and Menlo Park, N. J., sites of his laboratories; Milan, Ohio, his birthplace; and Ft. Meyers, Fla., where he maintained a winter home and laboratory.

As part of the Edison birthday celebrations, New York City Boy Scouts participated in a tableau honoring both Benjamin Franklin and Thomas Edison, who was portrayed by Rev. Dr. Nathan A. Seagle, Pastor Emeritus, St. Stephen's Protestant Episcopal Church. Franklin as "Patriot and Father of Electricity in America" was depicted as lighting the torch of liberty, brightened later by Edison, who passed it on to a Boy Scout, 12 year old Gary Ellenbuck. The tableau was conducted through cooperation of the Sons of the American Revolution and was held in the Headquarters of the Edison Pioneers.

Power for Freedom

An Interview with George M. Gadsby

President, Utah Power & Light Company, and President, Edison Electric Institute

The following is the text of a transcribed radio broadcast in which Mr. Gadsby is interviewed by Bill Slater. Designed to provide listeners with up-to-date information on the electric industry and its place in America, the broadcast is part of a series entitled "Americans, Speak Up," produced by America's Future, Inc., and released during the week of March 23-29 over many radio stations.

SLATER: Speak up, Americans, before your freedoms fade away! Speak up, Americans, it's time for you to have your say!

This is Bill Slater reminding you that whether we have war or peace, it is a priceless American privilege to speak up for Freedom.

Friends, in order to provide protection for our freedom, our industrial might is being expanded tremendously. The energy which makes such expansion possible is essential to the American way of life—electric power; so we are bringing to you an important, up-to-the-minute report.

Here at our microphone is a man who can tell us what's happening in the industry which produces our vital electricity. He is George M. Gadsby, President of the Utah Power & Light Co. and President of the Edison Electric Institute, an association of companies supplying electricity to more than four-fifths of the nation's electric customers.

Before we ask Mr. Gadsby what the industry now faces and what it is doing to make sure that electric power will continue to be available when and where needed, let's remember all of us, to speak up, Americans, . . . *for* America.

Mr. Gadsby, about a year ago our mutual friend Louis Sutton, your predecessor as head of the Edison Electric Institute, appeared on this program and discussed the power situation. He said then, "We have plenty of power to meet the needs of our country." Now in your opinion, does that still hold true?

GADSBY: Mr. Slater, a lot happened in that year, but Lou Sutton was proved right. Seven million kilowatts were added to the power plants of our nation in 1951, despite a curtailed supply of critical materials. I am confident of the ability of our industry to continue to take care of our country's power needs.

SLATER: When you speak of "a lot happening," were you referring just to the electric industry?

GADSBY: No, Bill Slater. But electricity is so vital to every phase of our American way of life that it's always involved, especially when a crisis seems to threaten. I was thinking chiefly of industrial expansion as a whole—the giant new steel and other plants, chemical works, and atomic energy installations. They all must have electric power.

SLATER: Didn't Defense Mobilizer Charles Wilson say recently that in 1951 better than 11 billion dollars was put into industrial plant expansion?

GADSBY: That's right, Bill. You get an idea of what this means from a statement that appeared in *Time* magazine recently. *Time* said that the United States in one year, 1951, added machines and plants for the basic sinews of war roughly equal to 69 per cent of the total existing industrial capacity in England.

SLATER: That is certainly a tremendous achievement, Mr. Gadsby.

GADSBY: Yes, it is—it's a marvelous demonstration of the ability of a free people.

SLATER: Now, if I remember correctly from last year's broadcast, the electric industry has been doing some phenomenal expanding itself.

GADSBY: You have a good memory, Bill. Last year, the electric companies put more than two billion dollars into new construction—

SLATER: Why, that's about 20 per cent of the 11 billion dollars total that Mr. Wilson reported for all U. S. plant expansion!

GADSBY: You're right. Ever since the end of World War II, they have been expanding at an unprecedented rate and by the end of 1951 spent ten billion dollars since 1945. By the end of 1954, the total for new construction is expected to be 21 billion dollars—averaging better than two billion dollars a year.

SLATER: What will all this mean to the individual citizen? How is he affected by the sum total of the nation's ability to produce power?

GADSBY: Well, at the end of last year, the electric companies' power-making capacity was 50 per cent greater than it was at the end of World War II.

That means more power helping the worker on the production line. It means more power to lighten the labor of the housewife and the farmer.

By the end of 1954, the electric companies' generating capacity will be more than double what it was in 1945, reaching a total of 82 million kilowatts. With the addition of governmental power capacity, the industry total will be 105 million kilowatts.

SLATER: Now, Mr. Gadsby, a minute ago you mentioned difficulties in obtaining materials. Do the plans you've outlined take into account any additional trouble with critical items?

GADSBY: No. They don't. But the electric industry has come to the conclusion that the completion of the expansion plans laid down is a "must," and, therefore, some way will have to be found to overcome the materials problem. The power needs of each region in the United States are under constant review by committees of power experts in the industry. So the electric company programs, based on the studies of these committees, are not dreamy-eyed—they must be fulfilled to meet essential power needs.

SLATER: Well, I suppose it's too true that many of us, though we depend on electricity every day, never really think of its importance to us.

GADSBY: I'm afraid you're right, Bill. The radio listener hearing our voices might find it interesting to figure out just how many ways electricity helps his comfort and his happiness in his home and his job.

SLATER: What happens if not enough critical materials get to electric plants?

GADSBY: We just can't let a situation like that develop, Bill. It might be disastrous. As a matter of fact, without

power, the critical materials themselves couldn't be produced.

A committee of the Defense Production Authority studying allocations to the electric industry of such things as steel, copper, and aluminum, pointed this up dramatically.

The committee found that in one year the loss of one kilowatt of generating capacity by these three industries would result in the loss of about *one hundred times* the amounts of these materials needed to *build* the one kilowatt of electric capacity.

SLATER: Well, when you put it that way, electricity sounds like production insurance—and job insurance, too.

GADSBY: That's the way we feel in the electric industry, Bill. After all, power supply is our responsibility and we take it seriously. We've never failed to fulfill our responsibility and we see no reason at all why we can't continue to fulfill it.

SLATER: Well, how do the governmental power-producing agencies fit into the picture? The public's been hearing a lot recently about the need for new government projects as defense measures.

GADSBY: Bill, national defense has become the latest disguise for the socialist-minded power promoters.

They have abandoned their flimsy contention that the development of power in Federal projects has been incidental to flood control, navigation, and other purposes that *are* constitutional, and have picked up the cloak of national defense as justification for demanding more and more of the taxpayers' money for government projects.

SLATER: Well, don't these government power promoters claim that the power supply job is so large that private industry can't do it alone?

GADSBY: Yes, they have claimed that, among many other things. But let's examine that claim for a minute.

We've already said that American industry—the industry of a free people—is doing a Herculean job in maintaining our material standard of living and in preparing for defense. And we've seen that the electric companies are at the forefront of this expansion, with billions of dollars in new construction.

Granted it's a big job—but do we want to pay taxes so that the government can make it a bigger job than it is?

Do we want to find ourselves completely under government domination? After all, the United States is making a great effort to prevent freedom from being overrun by communist Russia, where government is in complete command of everything.

SLATER: Mr. Gadsby, I think you've made an understandable point there. After all, the only reason that we're able to perform great feats of production is because we are still a free people and want to stay that way.

GADSBY: Yes, Bill, in spite of the handicaps of inflation growing out of government extravagance, in spite of taxation, we still have more economic and personal freedom than any other country. But to maintain these freedoms, we must stop government encroachment.

I feel very strongly about this, because the electric industry has been the target for socialist promoters for years. And I think the general public are waking up to the threat to their future security and freedom which goes with socialistic power plans.

SLATER: Well, now, is there any reason why the electric industry should be so attractive to the socialist-minded?

GADSBY: Definitely, Bill—and that goes back to the essential quality of electricity. If an all-powerful government controlled electric power completely, it would control all production and all jobs. There would be no recourse.

As the situation is now, the many local electric operating companies providing electric service throughout the nation are under the jurisdiction of regulatory agencies responsible to the people themselves. Once a Federal agency takes over, this local control is gone forever.

Now I'll ask you a question, Bill. Do you really think that Americans want to spend billions of dollars in taxes to gain so-called "cheap" government electricity, at the additional price of government domination?

SLATER: Well, not as I get their thinking, Mr. Gadsby—not when people stop and think about it a little and try to see what government power schemes could lead to.

GADSBY: I'm glad to hear you say that, because I get that same impression. The electric companies are expanding their facilities *at absolutely no cost* to the taxpayers.

At this time, with the tax burden getting increasingly heavy, it seems senseless to add billions more for unnecessary government power projects which could, in the long run, result in the loss of freedom, as well as in higher taxes.

In the end it means bureaucratic, imperialistic political appointees with effective control over the right to do business on every Main Street in America.

SLATER: Main Streets, by the way, which have grown and developed because of American economic freedom.

GADSBY: Yes. And on practically every one of them, Bill, you'll find an electric company office. The electric company is a part of the community and does its best to be a good citizen.

A good reason for that is that the companies are *owned* by good citizens—by about three million of them, directly, who invest in electric company stocks and bonds, and by many millions more, indirectly. They're the ones who are putting up the money for the expansion program that I was talking about.

SLATER: Those millions sound as if electric companies were really publicly-owned.

GADSBY: They are. Their owners are housewives, farmers, businessmen, teachers, office workers—people from every walk of life.

Anyone who has a life insurance policy or a savings bank account has a financial interest in the electric companies, because insurance companies and banks are among the important institutions who invest in electric company securities.

So you can see that every American has a financial stake in the companies making up the 21-billion-dollar investor-owned electric power industry.

SLATER: Well, then, you seem to think, Mr. Gadsby, that these millions of Americans have good reason to share your viewpoint?

GADSBY: Yes. To pay taxes so that government invasion of the electric industry can go further is buying a slow poison for the goose that laid the golden eggs. And that's true of government in any business.

We have had opportunity in recent years to look across the Atlantic and see Socialism in actual practice in England. We know what has happened there as a result of nationalization of industry.

The English have turned back, but

(*Continued on page* 83)

The Why of Area Development

By Paul V. Hayden

Director of Public Relations, The Connecticut Light and Power Company

An address before the Region No. 1 Conference of the Public Utilities Advertising Association, Boston, Mass., February 14, 1952

NEW ENGLANDERS have been labeled conservative ever since the landing of the Pilgrims, and this tag has been applied with equal force to commerce, agriculture, and business of all descriptions, including utilities.

It seems to me that I can detect a definite trend away from this extreme conservatism. My purpose in being here this morning is to accent this trend by suggesting to you that we all might be well advised to look a little more thoroughly at the idea called "area development."

The definition of area development to me is very simple and could be stated thus: it is the active participation in or the leadership of any group activity designed to enhance the economic, social, or cultural level of the areas we serve. To explain it further, I might give you the concept of the Area Development Committee of the Edison Electric Institute. We on the committee have broken our activity down into four subcommittees, named as follows: Civic Development, Travel and Recreation Development, Natural Resources and Agricultural Development, and Industrial Development. As far as the committee is concerned, there is no meaning to the order in which I have given these breakdowns, but I have deliberately put industrial development last because of its importance. This sequence may sound a little backward to you, but let me explain.

What Enlightened Managements Seek

Enlightened managements of today's manufacturing plants are looking for much more than modern buildings, good transportation, adequate power, and an ample labor supply. They are looking for lively, wide-awake communities in which there are more than average cultural facilities. They are taking a hard look at the adequacy of the school system, and they are interested in the quality and number of libraries, churches, and museums. They are looking for communities in which there are ample facilities for wholesome recreation for employees and their families, facilities such as lakes, clean rivers, and forests, as well as amusement parks, theaters, hockey rinks, and baseball fields. They also are extremely interested in the character and extent of housing.

It is not from hearsay that I say that industry is interested in all these things; it is from personal experience, and any of you who have ever done any industrial development work will understand that I am not exaggerating in the least. It should be obvious, therefore, that any work done in the community to improve its civic and recreational facilities is laying the groundwork for more successful industrial development.

What Is Civic Development?

To be specific, let us examine civic development and determine what it is. As I see it, utilities should take the lead in or participate actively in the following community activities:

1. Planning and zoning.
2. School and educational programs.
3. Youth programs, Boy and Girl Scouts, 4H Clubs, Little Leagues, boys' clubs, etc.
4. Physical betterment activities, which could be listed as:
   a. Aiding in the solution of traffic problems.
   b. Promotion and development of private housing projects.
   c. Activities connected with improvement of hospital facilities.
   d. Improvement and betterment of school and summer playgrounds.
   e. Paint-up and clean-up activities.
5. Cultural improvements. Under this heading could be listed activities pointed toward the establishment or enlargement of libraries, aid in the promotion of musical activities, such as concerts, recitals, etc.
6. Urban redevelopment.

This last is an area of civic development that is becoming increasingly important. As you know, the trend of growth today in almost all cities is toward the city limits and beyond. The last census figures indicate clearly the terrific population growth in the so-called satellite towns surrounding almost any large city in the nation. We have also witnessed just outside of Boston and many other cities the development of very large and modern shopping centers to serve suburban residents.

As all of this residential and commercial activity moves outside of the center of our large cities, it leaves behind large blighted areas which become a drag on the city, because of reduced assessments and lessened business activity. I don't know whether or not New England cities suffer from this situation any more than cities in other parts of the country, but I do know that in Boston, Worcester, Springfield, Waterbury, Hartford, or any other New England city you want to name, you can find fairly large slum areas that badly need attention. That slum areas adversely affect the load growth of the big-city electric companies no one can deny, and I wish to cite an example where such a company has been doing something about it.

A Positive Example

The Union Electric Co. of Missouri in St. Louis realized some time ago that it could not prosper in a slum section; so it became part of an urban redevelopment corporation, an organization supported by subscription of leading newspapers, banks, department stores, manufacturers, and merchants of the city. A kitty of about two million dollars was necessary to start the program, and the corporation has authority to issue negotiable income debentures in the principal sum of five million dollars. Its stated purpose is the clearance, replanning, reconstruction, or rehabilitation of blighted areas, and the construction of such industrial, residential, or public structures as may be appropriate, including provisions for incidental recreational and other facilities.

Although the Federal government has a slum clearance program, it was obvious to the business leaders of St. Louis that the responsibility for slum clearance was primarily local. These business

leaders knew that if a slum clearance program were to be successful, permanent, and fitted to the needs of St. Louis, they would have to provide the leadership for the program. The activities of the Federal government alone would not give the complete answer.

The Union Electric Co., in order to invest in the redevelopment corporation, had to get permission of the SEC. In stating its case, the company declared that participation in the program was not only in harmony with its civic responsibility but that the carrying out of the objectives of the corporation would be in the best interests of the business section of the city and would thus redound to the benefit of the company and its service to the public.

In addition, rehabilitation of blighted areas means a direct tax saving to the operating electric company, as well as a better market for its sales, both of which items are placed on the right side of the ledger.

Recreation and Travel Business

Let us focus our attention now on the commercial recreation and travel business. In its 1951 report, the Subcommittee on Travel and Recreation took the position that it was not within the scope of its activity to present either a program or an outline of how an electric company could cooperate in the recreation business in its service area. It did feel, however, that it could list some of the activities that were being carried on in this field by companies in the United States, and it has listed them as follows:

1. Assistance in developing better facilities to house, feed, and entertain vacationists.
2. Development of hunting and vacation facilities on company-owned property, particularly when located adjacent to water.
3. Cooperation with local travel organizations within service areas.
4. Cooperation with state development agencies.
5. Cooperation on conducting travel host schools, tourist clinics, etc.
6. Participation and cooperation on vacation, hunting, fishing, and wild life exhibits and shows.
7. Advertising tied in with vacation and travel activities.
8. Vacation programs within company organizations.

All of these activities are not being carried on by any one company, but many of the companies that the subcommittee met with during two years of regional meetings were active in three or more of these fields.

To indicate briefly the scope of the recreation and travel industry, the most conservative estimate placed the industry's yearly dollar volume at about 12 billion dollars. This estimate includes only interstate travel reported by reliable travel organizations. When intrastate travel, week-end travel, and other vacation activities are included, the total can easily be increased to from 15 to 18 billion dollars.

Dollar Volume

I realize that it is difficult to pin down exactly the dollar volume of this industry, but I would like to quote from a report made by the Federal Reserve Bank of Boston in April, 1951. This survey, based on a 5 per cent sample, indicated that the total revenue from housing and feeding vacationists in New England totaled 170 million dollars per year. The electric revenue involved in this amount of business was approximately three million, 100 thousand dollars, equal to 1.8 per cent of the total.

It is reported that the American Automobile Association, the American Hotel Association, the Curtis Publishing Co., and the Maine Development Commission generally agree that lodging and meals constitute about 20 per cent of all travel and vacation expenditures. This means that the travel and recreation industry amounts to five times 170 million, or 850 million dollars per year in New England. I do not believe that we can in all honesty apply the 1.8 per cent to the 680 million dollar difference between lodging and meals and the total, because we do not receive much from the dollars spent for transportation, amusements, etc. I do believe, however, that we would not be too far wrong in estimating our return at one-half of 1 per cent, which would give us another three million, 400 thousand dollars, making a total electric revenue of six and one-half million dollars per year. The one-half of 1 per cent would come from increased commercial sales to gas stations, stores, amusement parks—all such sources except lodging and meals.

It is true that this six and one-half million dollar figure is not large compared to the total annual utility revenue in New England, but if any one could figure the indirect benefits, such as the wages of people employed in the travel and recreation industry, it would result in a higher figure than the six and one-half million. No one, however, has the answer to that. In any event, here we have a large group of people in New England whose prosperity depends on the commercial exploitation of our recreational natural resources, and I suggest to you that any help that we can give this group will not only be gratefully received but will also reflect a direct increase in our revenue.

Let me cite a concrete example of electric company participation in community effort in the recreational field. This example is from a report given at our regional meeting in Philadelphia last May by E. M. Huben, Special Representative of the Central Hudson Gas and Electric Corp., which operates, among other places, in the Catskills.

During the Gay Nineties, Hudson River steamboats and scenic, water level railroads brought thousands of people to Ulster and Greene Counties in the Catskill area. With improvement in transportation, the steamship and railroad companies encouraged their patrons to go farther from New York for vacations. This new fashion caught on and gradually Ulster and Greene Counties were by-passed.

In 1934, after a long period of economic stagnation, community leaders in the small town of Rosendale in Ulster County organized an association to improve the town and attract summer visitors. Their work was successful and the town's resort business was revitalized.

Survey Shows Resort-Center Potentialities

At about that time the Central Hudson Gas and Electric Corp. made a survey of Ulster and Greene Counties to see whether or not they could be developed industrially. The survey indicated that the area was not particularly suited for this purpose but did have potentialities as a modern vacation center. Mr. Huben was assigned to investigate and promote a coordinated effort to design a campaign to revive the area from a recreational standpoint.

I will not go into the details of how it was done, but today there are 2000 hotels, camps, and tourist homes which can accommodate 80,000 people at one time, and more than 500,000 persons visit the area annually. These figures can be compared with the population of the two counties of 111,000. Estimates have been made that the vacation business in Ulster and Greene Counties

amounts to 28 and a half million dollars each year.

The next broad subject which I would like to discuss concerns agricultural development and conservation of natural resources. I can dispose of agriculture very quickly because those of us in New England who serve rural areas have been active in agricultural development work for many, many years, and a recital of the number of farm organizations with which companies can cooperate would merely be repetitious.

Definition of Conservation

The subject of conservation, however, to my mind is a field of activity which is loaded with opportunities for the utility companies. I suspect, however, that in the interests of clarity I should explain what conservation means. There are probably many definitions of conservation, but I shall give you my own brief understanding of it, which is the conservation of renewable natural resources, particularly water, forests, soil and wild life. Books have been written on each of these various phases of conservation, but it is my belief that water is the keystone of the conservation arch. Without water, we would not have forests or wild life, and our soil would be of no particular value. Water is something today that hits close to home, because there isn't a metropolitan area in the nation that doesn't have a present or imminent water problem. Water, or rather the lack of it, is a distinct threat to the future growth of large urban areas.

Our rainfall doesn't change much from year to year, but our facilities for storing rain water are changing for the worse. Water is running off faster and faster because we have taken away the trees, plants, and soil that used to hold it in the ground.

Every time we build a house or a hard-surfaced road we are subtracting from our storage facilities and providing an opportunity for a faster runoff. And while this is happening, we are increasing our consumption of water at a terrific pace. In Baltimore, for instance, water consumption has increased 69 per cent in the past six years, as against a population gain of only 6 per cent. In Hartford, Conn., the average individual use is now about 120 gallons of water per day.

And then we have floods. The effect on our physical properties isn't nearly as important as the fact that floods provide excuse for the government to step in and build expensive flood control dams, which incidentally can generate power. Instead of that kind of flood control, we need to do something about flood prevention, and one answer to that is conservation practices, back in the hills where water can be held where it falls.

All over this broad country of ours, groups of people, disturbed by the rivalry between our governmental agencies over the control of water resources, are banding together so that they may have a stronger voice in the disposition of their local water resources. The Brandywine Valley Association, the Wisconsin Valley Improvement Co., and the Miami Conservancy District, are just three of many such organizations.

The use of water for the generation of electricity is of very great importance to us, and we all know that there are many conflicting interests that develop as soon as we attempt to build a dam and create a reservoir. Conservation organizations, to my mind, offer a wonderful opportunity for electric companies to explain their points of view and objectives. Where direct conflicts occur, it is much easier to achieve sound solutions and gain support around a meeting table before the controversy gets to the public press. Speaking from experience, I can say to you that the electric companies in Connecticut do not regret for a moment their membership and activities in the Natural Resources Council of Connecticut, which is just the sort of a conservation organization I have been referring to. In the near future, it is hoped that you will hear more of a larger organization, similar in character to the one in Connecticut.

The additional aspects of conservation, such as reforestation, pollution abatement, soil conservation, flood control, and others, all have their own organized groups in these fields with whom companies can and should cooperate.

Industrial Development

We now come to the fourth, last, and, to my mind, the most important phase of area development, namely, industrial development. Industrial development is an activity designed to aid a community in developing a better economic climate in order to promote the local expansion of its present industry and attract new industry. Broadly speaking, such activity is one of enlightened self-interest, firmly grounded on the fact that industry is the economic base upon which many of our communities depend for their survival and growth.

First and foremost, industrial development should concern itself with promoting the growth of existing industries by assisting them to operate in the most efficient manner. Beyond this, it may involve assisting other agencies, such as Chambers of Commerce, state development agencies, and trade associations, as well as local government leaders and public-spirited citizens, in community planning and zoning, advertising and promotion, and negotiations with industrialists contemplating new plants or relocations. Under some conditions it may involve direct negotiation and promotional work.

Direct Benefits

The direct benefits of industrial development to the electric company are, primarily, increased industrial sales. Further benefits accrue as industrial sales increase, because of more jobs, which mean more people who need homes, thereby increasing residential sales. This increase in jobs and people calls for more services which mean higher commercial sales. Conversely, a shrinkage in industrial sales creates a shrinkage in residential and commercial sales. It should be obvious, therefore, that the utility prospers to the same extent that the community prospers, which in turn depends to a large degree upon industrial prosperity and growth. Industrial development benefits the community and its electric company by:

1. Securing more employment and taxable property for a community and assuring population increases.
2. Assuring growth in sales and expansion of utility companies.
3. Assuring commercial and residential sales which depend to a great extent on industrial payrolls.
4. Improving customer good will and lessening competition from other power sources.
5. Helping to offset normal business failures.
6. Improving relations with municipal authorities.
7. Promoting stability in community and company income through intelligent diversification of industry.

The electric company is eminently fitted to engage in industrial development work or to assist others, because it has on its payroll men who have:

1. An engineering background to provide a sound basis for analyses of customers' problems.
2. A knowledge of industrial business operations and requirements.
3. Contacts throughout industry in the territory, which provide a broad knowledge and appreciation of industrial problems.
4. The confidence of industrial customers.

The many benefits to be derived from such an activity are so crystal clear that it seems hardly necessary to labor the point any further. I have defined various phases of area development and have tried to point out some of the direct monetary benefits to be gained by companies through such activities, though I realize that in some fields the direct return is not particularly interesting and is, therefore, not to be taken too seriously.

But may I call your attention to what the top management of General Motors, in an elaborate booklet, recently exhorted its thousands of dealers across the country to do:

1. Provide schools with student driver-training cars.
2. Actively participate in the affairs of civic clubs, Chambers of Commerce, etc.
3. Sponsor athletic teams and provide recreational facilities.
4. Interest themselves in such youth activities as Boy Scouts, Girl Scouts, Junior Achievement, etc.
5. Assist in providing and maintaining camps for underprivileged children.
6. Participate in worthwhile community fund-raising campaigns.

Summary

Now I would like to summarize for you the three principal reasons why I believe that electric companies should participate in area development work today.

The first reason is, as I have partially indicated before, one of monetary return. Now, whether that takes place as an increase in sales revenue or a decrease in taxes is unimportant. Whichever result is achieved contributes to our own prosperity.

The second reason is one of public relations. It is not enough for us today to say that our rates are fair, that we pay our share of taxes, and, parenthetically, who doesn't, and that we render dependable service. We have been doing that for years and too few people are favorably impressed. We must seize every opportunity available to us to make ourselves known as good, friendly, corporate citizens, willing to share the responsibilities of community life.

We have the opportunity to create a feeling of active friendliness so we may gain support for the preservation of our way of doing business as opposed to the idea of public ownership of utilities. Antagonism toward, indifference to, or passive acceptance of us by our customers makes fertile ground for the seeds of government-ownership propaganda and awfully barren ground for the seeds of the private-enterprise idea we are sowing through advertising. It is my feeling, and it is a strong one, that area development activities give substance to the advertising which we do in the newspapers, magazines, and on the radio.

As Edward L. Bernays has put it: "The communication techniques of business in selling the American way have been poor, because they have been based on the premise that words as words would create acceptance."

The third reason—the preservation of the American way of life, the private enterprise system, or whatever you want to call it—is the most compelling reason why we should actively assume community responsibilities. It transcends revenues and public relations. I am not sure that I can convey to you exactly what I have in mind, but I will try. It appears to me that for the last 20 years, the people of this country have been sadly lacking in good leadership. We had strong leadership for a period during this time, but in my opinion, it was leadership in the wrong direction. It encouraged us to relinquish our individual and community responsibilities. However, be that as it may, we have all either bemoaned the fact ourselves or have heard others complain that today the individual has shucked all of his responsibilities, and when anything goes wrong, he looks to the town, the town looks to the state, and the state looks to the Federal government. If this concept is not true, how can you then explain the terrific growth in the activities of the Federal government in the past two decades? If you reflect on this at length, it seems to me that this conclusion is inescapable: either we assume our individual and community responsibilities and persuade others to do likewise or the American system as we know it will perish. It's up to you.

Graduation Exercises Conclude Fifth Annual Ebasco Safety Seminar

ATTENDED by operating executives and supervisors, as well as by safety directors, the fifth Ebasco Safety Seminar was concluded with graduation exercises at the Downtown Athletic Club in New York City last month.

Approximately half of the 11-day seminar was spent in classes at the Center for Safety Education, New York University, with the remainder devoted to conferences at Ebasco Services, instructional work, and field trips. Other phases of the seminar dealt with requirements of supervisors, making instruction effective, personal factors in personality frictions, driver psychology and testing, and the "accident-habit" employee.

Since the success of a safety program is often dependent upon the speaking ability of its administrators, a great deal of time was allotted to elements of good delivery and methods of preparing talks. The seminar also included practice periods in public speaking, which stimulated the exchange of safety information.

Among the field trips made possible through the seminar were an inspection of the Long Island Lighting Co.'s training school; a visit to Consolidated Edison Co. of New York, Inc., where the company's safety program was reviewed; and a tour of the C-O-Two Fire Equipment Co. In addition, through the cooperation of First Army Headquarters at Fort Jay on Governors Island, the seminar group was permitted to visit the island to inspect the Army's driver training program and psychophysical testing devices. The group also saw a safety film developed by the Army to impress military personnel with the importance of off-duty safety.

Speakers at the graduation ceremonies were W. T. Rogers, Ebasco Safety Consultant and Seminar Director; Dr. Herbert Stack, Director of New York University's Center for Safety Training; and Dr. Walter A. Cutter, Assistant Director of the Center.

Components of a Strong Public Relations Program

By H. S. Metcalfe

Director of Public Relations, West Penn Power Company

From an address before the New Jersey Utilities Association, Absecon, N. J., November 16, 1951

ALL of us have public relations. Most of us have reason to hope or assume that they are good. We feel generally that the public accepts us—that it does business with us willingly on a reasonably friendly basis. We may recognize certain weak spots in our public relations but believe that we have ample facilities for putting out local fires should they develop.

But the question today is: do we have a balanced public relations program for employees, our public, and our stockholders that—

1. Keeps them fully informed of policies, problems, and activities affecting them?

2. Keeps them aware of the part we play as citizens in our communities and in the American competitive business system?

3. Keeps them actively enlisted on our side in warding off attempts to control or expropriate our industries?

A balanced public relations program must, of course, be predicated on fair treatment of employees and on a policy of sincere dealing with our customers in matters of sales and service.

Beyond these prerequisites, however, there are four major elements that are vital in developing a sound public relations program:

1. Sound employee relations built with an informed group of loyal workers.

2. Good customer relations insured by intelligent understanding of company and industry operations and problems.

3. Cooperation of stockholders and their families.

4. Strong community relations involving a shared citizenship.

Welding the four elements into a workable public relations program obviously calls for top management concurrence on policy, qualified personnel capable of administering both the policy and program, and wholehearted cooperation of all executives and supervisors in accepting responsibility individually for the parts each must play in the program.

With these thoughts in mind, let us look at each of these four basic elements in turn, together with some of the techniques and materials available to implement them. In so doing, I will, of necessity, draw heavily upon our own experience at West Penn Power Co. But practices and devices will be included which have been found helpful by others in the utility field.

Good Employee Relations

This first element is absolutely basic to good public relations. Employees are the backbone of utility service. They are the front line guardians of any company's reputation. They can be the company's foremost ambassadors of good will, or they can be breeders of discontent and misunderstanding in the community.

If they understand the problems facing the company or industry—if they are acquainted with basic policies and operational procedures — if they are aware of threats to the industry because of encroaching government competition and control—employees can be intelligently vocal on their company's behalf.

Employees so informed about the matters affecting their company are usually loyal employees. Many become enthusiastic supporters of the company's cause, inspired with almost a missionary zeal. This has been proved in numerous instances in the electric industry.

It is vital, then, to our public relations program that we develop a thorough, continuing employee information program, utilizing the many successful communications techniques available. Although these may be familiar to most of you, let us review some of them.

Communications Techniques

1. The employee handbook or manual which serves to indoctrinate new employees on basic company policies and operations can also act as a refresher for older workers.

2. The employee magazine or newspaper is an excellent channel for a steady flow of information about company policies, operations, and problems; also on collectivist threats to our industry and economy. Source material on these broader matters for employee publications is readily available today from industry groups and from the many agencies engaged in programs on economic and political education.

3. Literature on industry, business and general economic matters can be placed in employees' hands. A variety of distribution methods may be used. Much useful material is so detailed or technical that it need be only routed to supervisors. On the other hand, some literature is so generally understandable that it can be distributed to all employees. Material dealing specifically with company or industry matters can be appropriately mailed to employees' homes with a letter from the president. Other types of leaflets and pamphlets may be placed in literature racks or left in crew rooms for employees to pick up at their own inclination.

Books, fairly detailed booklets, and articles of a kind not normally distributed widely can be circulated from company libraries set up in strategic work locations. There are many easy-to-read, stimulating books and articles available today on economic and political subjects that are suitable for this purpose.

4. Supervisors, because of their positions and generally higher interest level, will normally read more comprehensive information about company and economic issues. Special supervisory news bulletins can be distributed quickly and easily. Supervisors generally appreciate being informed ahead of their employees and the public on matters of importance.

5. Training programs now regularly include periodic meetings of supervisors to discuss such matters as problems of management, company operations, human relations with employees, and economic and political fundamentals.

It is becoming apparent that similar types of discussion meetings can be held very effectively with the majority of a company's employees on such subjects as company structure and operation, basic economics, and political ideologies. Problems of training leadership and presenting acceptable material have been met successfully within this past year by

a number of skillfully developed packaged programs. Most of these are sufficiently flexible for adaptation to local conditions and individual needs. Programs are currently available from such agencies as Middle West Service Co., National Association of Manufacturers, Ross Roy, Inc., University of Chicago, American Economic Foundation, Brookings Institution, Harding College, and others.

6. Bulletin boards in enough locations to reach the majority of employees are an obvious and simple channel not to be overlooked in any employee information program. Large, colorful and compelling posters are available from several commercial sources, at a price. However, much good posting material is readily available in the way of company and industry advertising reprints, and home-made mimeograph, silkscreen or offset posters. In addition, employees can be encouraged to post items they read and clip from periodicals such as articles and cartoons dealing with current business, economic and political themes.

7. In the visual education field there are now a number of good movies and film strips on basic economics and politics available from many sources. They may be shown either in training programs or at informal employee meetings and parties.

It is worth noting that many employees can be enlisted in active participation in their own information programs. Such volunteer effort capitalizes on their interests and channels their energy into useful activity. Employees can perform such helpful functions as operating the "fan-out" system for literature distribution, monitoring bulletin boards, manning libraries, operating projectors, scheduling and chairing discussion meetings.

Employees enlisting in an information program tend to become the best informed and, therefore, the most enthusiastic ambassadors of a company's cause. Thus they are builders of good public relations.

Winning Customer Support

This second element can only be insured by an intelligent understanding on the part of those who use our service of the many and varied problems that are facing our companies and industries.

Most of us recognize that when we are faced with increasing our rates to customers, or making other major changes in policy, it is wise to prepare and follow a thorough-going program for getting the public's understanding and support. Much attention is given to training contact employees, publishing advertisements, releasing newspaper articles and mailing carefully worded statements on the matter involved. In the main, such efforts have paid off in the way of improved public relations at the crucial time of any important operational change.

Seemingly today we have an equally good opportunity for winning our customers' continuing support on some of the broader, long-range issues that affect our business. We need thousands of supporters who sincerely believe that our companies are operated on sound business principles, for the service of the public, with rates that are established fairly. Fortunately we have channels through which to carry such convincing messages:

Message-Carrying Channels

1. Employees who normally contact customers can be given special training to make them able evangelists for our company and industry.

2. In addition to sales messages, our established publications going to customers can well carry advertisements, editorials or news items concerning company operations and industry achievements or problems.

3. Newspaper advertisements, telling either a company or industry story, are a means of driving home important truths customers should know about our business.

4. Newspaper publicity articles can be based on local issues affecting individual companies, or they can report national trends through the mouth of the local industry spokesman.

5. A variety of good radio programs are available for local sponsorship which provide opportunities for doing a job of political education or discussing individual company problems. One example of the broad educational type of program is "Speak up, Americans!" produced by America's Future, Inc., of New York, featuring John T. Flynn and other leaders in the national picture. Another is "The Freedom Story," a weekly broadcast series by Spiritual Mobilization of Los Angeles.

6. Cooking schools, appliance demonstrations, and other promotional meetings held with customers give opportunity for showing short movies or injecting a few words to urge support of company objectives or of our highly productive enterprise system.

7. Nearly all advertising to customers lends itself to at least a brief emphasis on the business-managed character, and taxpaying citizen role played by our businesses and industries.

Informed, sympathetic customers become more than just the source of revenue. They are valuable supporters of our company and industry objectives.

Stockholder Appreciation of Problems

The third element depends on stockholders and their families' appreciation of management's problems, and the efforts made to solve them. Here I must speak more from observation than actual experience, since only a small block of my company's common stock is in public hands. We do, however, have some 6088 preferred stockholders. But those of you with widely held securities have both a good audience and ample channels for reaching it—to win friends and supporters whose interest can be deepened considerably beyond their anticipation of the quarterly dividend check. For example:

1. Many companies send letters of welcome to new security holders, giving a brief explanation of the products manufactured, the services rendered, and the aims and policies of the management.

2. In recent years attractive annual reports often go beyond the required formal statements and give the stockholders an understandable interpretation of company operations in terms of service and the human element. Today it is by no means uncommon for the president's letter in an annual report to cite industry problems and reflect upon the effect of government control or competition.

3. Enclosures sent with quarterly dividend checks are used by some companies to discuss various phases of company operations in addition to reporting current financial conditions.

4. Stockholder meetings, held in local areas, where a reasonable audience can be expected, have been used with considerable success by a number of corporations. At such meetings, usually the president and other officers report informally on company progress and answer questions which may be asked. Products, services, markets, operating methods, and problems are discussed, often with the assistance of charts, demonstrations, displays, or other visual aids.

Such close grass roots contacts help to increase a stockholder's sense of personal ownership and interest in the business.

Though they may be primarily interested in the return on their investment, stockholders can be enlisted in active support of our cause.

Local Citizenship Responsibilities

The fourth and final element requires a company to accept its share of local citizenship responsibilities. As service industries, our success depends largely on the growth and welfare of the communities in which we do business. It is to our advantage to develop in every way we can the economic strength and moral character of the areas we serve.

In most communities we already have the foundations on which to build a reputation for being a good citizen—a power plant, a pumping station, a service building, a business office, or at least a few employees residing locally.

These conditions create many opportunities to emphasize the company's role of citizen. For example:

1. Participation by key employees in civic affairs through active membership in local community organizations.

2. Leadership of welfare and charity drives such as the Community Chest and Red Cross.

3. Financial support of worthwhile causes on a fair, explainable basis.

4. Leadership in the work of character-building, rehabilitation, and youth agencies.

5. Promotion of territorial development by working with other community interests to attract and locate new industries.

6. Plant tours, where feasible, for thought leaders and other community groups to show how your business operates and how your employees work.

7. Where available, offering company property for community recreational or civic purposes.

8. Providing business office window or floor space for displays by scouts, 4-H clubs, and other groups.

9. Making demonstration kitchens or other assembly rooms available for women's clubs and other meetings.

10. Maintaining a speakers' bureau to supply speakers and films for the programs of all types of public groups. From your executive and supervisory group a corps of qualified speakers can be trained. A wide variety of speech material can be developed, ranging from discussions of detailed company operations to matters of economics and American citizenship.

Motion pictures can be informative, as well as entertaining. In addition to industry films, there are many good movies dealing with economics, ideologies, and citizenship responsibilities.

11. Providing local newspaper editors with special material, not for publication but as background on company and industry problems.

12. Cultivating a list of thought leaders in the community, such as the clergy, educators, editors and civic leaders, and sending them appropriate information.

13. The public's esteem can be enhanced by publicizing, without boasting, the many things a company does for a community besides supplying a necessary service. Many of these can be publicized in terms of people, thus arousing a feeling of human warmth toward the company.

Activities such as these create an awareness of the important part the company and its employees play in the ongoing life of the community, and of the values in a citizenship shared mutually by the company and the public.

Do you have a public relations program? I am sure you are already using some, perhaps many of the elements just reviewed. Perhaps they are even a part of a long-range plan and policy. On the other hand, your public relations may have developed out of emergency and expediency over the years. If this is the case, now is a good time to restudy your public relations and organize the present elements into a sound, forward-looking program. In so doing, you will want to follow four distinct steps:

1. Determine Your Objectives. This first step is in terms of major principles such as rendering adequate service, bettering your communities, treating your employees fairly, and preserving the American private business system.

Put your objectives down in writing and broadcast them throughout your entire organization. Refer to them frequently.

2. Build a Plan. Study carefully the present state of your public relations. Determine if your current practices fit in with your stated objectives.

Analyze your existing facilities for communicating with the public, employees, and stockholders. Are the channels open both ways?

Prepare your plan of action, using the techniques and media discussed earlier to overcome weak points you may have discovered.

3. Establish Responsibility. Policy and authority should be crystal clear.

(*Continued on page* 88)

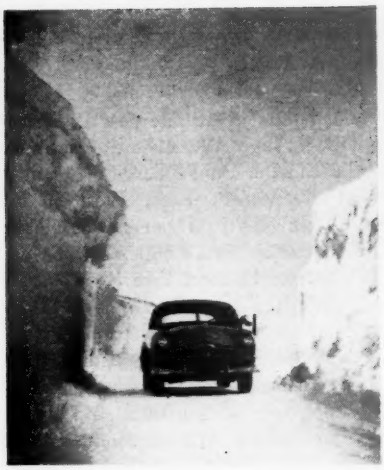
Annual Young Men's Utility Conference to Convene in Ft. Wayne

DESIGNED to foster development of future leaders for Indiana electric companies, the 12th annual Young Men's Utility Conference, sponsored by the Indiana Electric Association, will be held in Ft. Wayne on April 3-4. The Indiana & Michigan Electric Co., with headquarters in Ft. Wayne, will play host to this year's meeting, which is expected to attract more than 250 youthful representatives of the state's business-managed companies.

A. B. Brown, Vice President of Southern Indiana Gas & Electric Co. and Vice President of the Indiana Electric Association, will serve as sponsor of the conference, which will be under the chairmanship of Warren W. Widenhofer, Assistant Public Relations Director of Indiana & Michigan.

Among the speakers at the meeting will be C. V. Sorenson, I. & M. Vice President and immediate past President of IEA; Hugh W. Abbett, Chairman of the Indiana Public Service Commission; Dr. M. O. Ross, President of Butler University; Dean H. Mitchell, President of Indiana Public Service Co.; and Wallace O. Lee, Vice President of Indianapolis Power & Light Co. In addition, there will be a panel discussion, a popular feature of past conferences, which will deal with financing, personnel, engineering, sales, and operation, and which will be conducted by five young men representing Indiana companies. Following this presentation, conferees will participate in a question and answer period.

A group banquet, attended by top executives of Indiana companies, will be held on April 3, and the dinner gathering will be addressed briefly by Harry W. Beals, Mayor of Ft. Wayne.

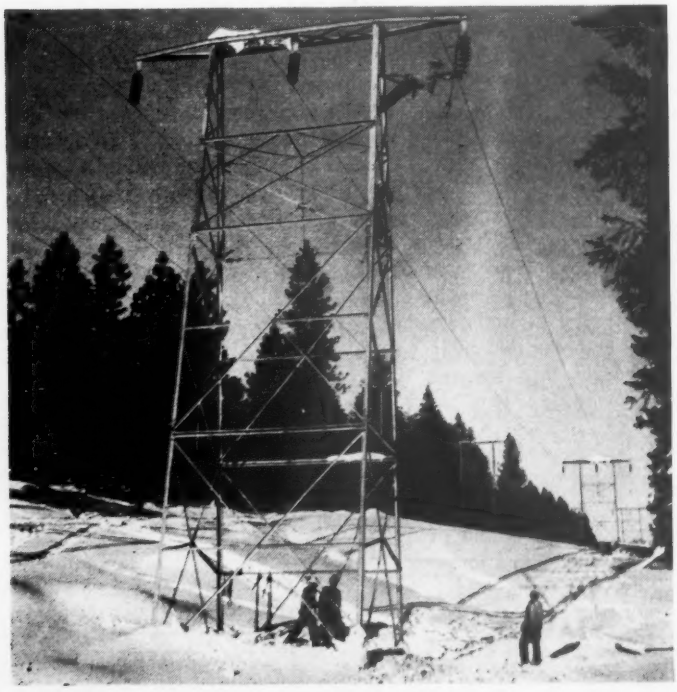


Drifts on Highway 40 near Blue Canyon.

To repair a line, a cat tries to clear road from Colfax to company camp above You-Bet.

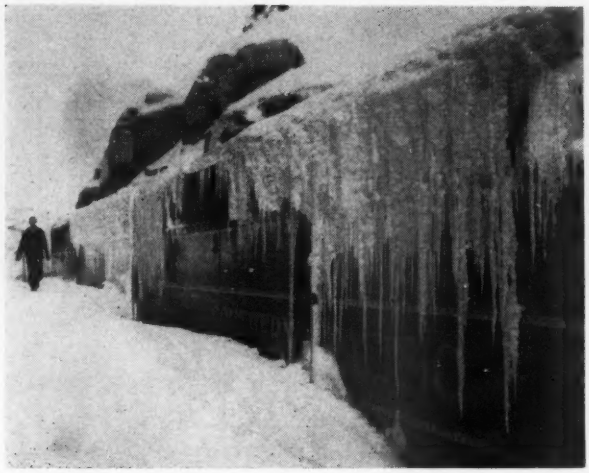
A crew, stranded by failure to clear the Colfax road, gets a lift into camp.

Linemen slogging over deep snow from tower to tower.



Securing a span of the repaired Drum-Vaca-Dixon line to an insulator.

A Tucker Sno-Cat demonstrates its great flexibility.



The City of San Francisco, enroute west from Chicago last January, was stalled by gigantic snowslide at Yuba Gap along the Southern Pacific right-of-way. A PG&E crew was first party to reach train.

The PG&E crew members first to reach train were (left to right) Jay Gold, Roy Claytor, and Charles Swing. Mr. Gold died two days after this picture was taken as a result of his strenuous rescue efforts.

The Big Storm

By Harry S. Furlong

Drum Division Commercial Manager, Pacific Gas and Electric Company

WHEN George R. Stewart's novel, *Storm,** appeared in 1941, it became a nationwide best seller within a few weeks. It introduced a different style of dramatic sequence in that there was no hero or heroine except the storm itself and its effect on the lives of a lot of people. Christened "Maria" by a young meteorologist in the Weather Bureau (as has long been the custom of meteorologists), Professor Stewart's *Storm* spread death, suffering, and destruction very much as did the great storm of January, 1952.

In the novel Maria hit hardest and heaviest in the region converging at Donner Summit. She closed Highway 40—for a few days. She raised havoc with the telephone and with electric power. She stopped the streamliner for an hour or two, because of a flash flood. Dramatic and powerful as is Stewart's *Storm,* Maria is a sissy compared to the storm which was born somewhere east of the Japan coast shortly after the New Year, 1952, and moved swiftly across cold Bering Sea toward Alaska. Then suddenly it veered southward over British Columbia, Washington, and Oregon to Northern California. Perhaps the 1952 storm was also given a name by someone in the Weather Bureau. Probably many of the men who fought it to keep the highway and the railroad open, to keep the telephones working and the power flowing over transmission lines, had a name for it—but one not as decorous as Maria.

A sort of prologue to the big storm began on January 4 and 5 when a very wet snow fell as low as the 1000-foot contour, loading down trees until they contacted power lines, causing interruption of electric service in Auburn and the lower foothill territory where snow seldom falls. Alternate rain and snow continued through the following week with minor damage.

Gale Lashes California

But on Friday, January 11, the new storm came crashing against the California coast to shake the Golden Gate Bridge with a 75-mile gale and roared across the valley to strike the foothills and the mountains, toppling trees, snapping power poles, and demolishing structures. And with the wind came the rain that turned to snow not far above the 1000-foot contour, and the battle between the snow plow and the elements began, to be finally chalked up as a loss for the plow.

When the storm hit Donner Summit, the snow gage at Norden read 126 inches. Throughout all that day and night and the next day and the next the snow fell, driven before a howling gale that piled up drifts to unbelievable depths. At the little weather station, anchored by cables atop Donner Pass, the wind gage, capable of registering velocities up to 100 miles per hour, "hit the bumper," and the Norden snow gage recorded over 17 feet on Monday morning.

Meanwhile, the army of men, whose duty it is to keep the highway and the railway open and the phones working and the electric current flowing, headed out into the blizzard to give battle. There is a sort of comradery, more or less unspoken, among these mountain men. Highways, rails, power lines, and telephones they fight to keep open that the millions down in the lowlands may enjoy their accustomed conveniences. They're a tough breed, these men, and dependent on their own resources. They have to be to survive.

This is not a story of all the line failures and subsequent restorations of service, of canals filled with snow, of failures of generators at critical times. There is neither time nor space to record all the struggles, hardships, and disappointments that went with the Big Storm.

Trees were down by the hundreds. They fell indiscriminately across power

* Published by Random House.

Time out for Alta crew. Crews slept little, often ate cold meals.

Replacing a pole near Alta. Some poles were buried by 35-ft snows.

lines, telephone lines, canals, flumes, roads and trails. Landslides took out sections of flume and ditch. One power house shut down and is still shut down because the canal that supplied it is filled with snow. Above 5000 feet, the snow was powder-light and dry, covering telephone and even some distribution circuits in tremendous drifts. Below 5000 feet, it was heavy, wet, and sticky. Sometimes the conductors built up to a diameter of 15 inches and broke or pulled a crossarm down. The trees became so loaded with the sticky mass they leaned across lines and shorted them without falling. Or they fell and took the poles down with them.

Still the storm raged and the snow kept falling. One by one in the more isolated mountain communities the power went off—Sierra City, Washington, Downieville, Camptonville, and Alleghany. Georgetown and Foresthill were out intermittently, as were Dutch Flat, Gold Run, and Alta. But these mountain people knew what a real snow storm was and, instead of complaints, cheers were in order for the job our tired crews performed in restoring service.

To repeat, this is not the story of the Big Storm. Everybody was too busy to take notes on the things that happened. There was only one objective—to restore service in the shortest time possible. But lots of things did happen, and from the routine reports a few may be recounted.

Between Bear River and Steephollow is Lowell Hill Ridge, which takes its name from a town that no longer exists. Along the top of the ridge extend twin transmission lines that carry the power from Drum Power House to the lowlands. To get up there, you leave Highway 40 at Glen Alder and travel the Red Dog Road up over the Camel Hump. On a summer day it is a pleasant drive, and in less than an hour you may turn off at Mule Springs for a cool drink. (Mule Springs was headquarters for the expedition to rescue the Donner Party back in 1846.)

When both tower lines went out in the Big Storm, it took 53 hours with bulldozers to open the road as far as Levee's Cabin, which is about 20 miles from Glen Alder. From here a General Construction Crew, under Foreman J. O. Gearhart, proceeded on web snowshoes to patrol the line. One of the men reported that "we worked 29 hours, then got five hours sleep, then 24 hours with some catnaps. It took us nine hours to make the last four miles." He forgot to add that during the 29-hour trek there was only one cold meal and the sleep was on the floor of a mine shack in Steep Hollow. But they found the breaks and they spliced them and finally both lines were back in service. Then 22 men tried to find a place to sleep on the floor or on tables or chairs in Levee's small cabin. But food was coming in from Colfax by then, and they had a steak dinner.

Operation Rescue

So much has been written about our Sno-Cat crew and the snowbound streamliner in the press that perhaps there is little left to record. We can only express some small degree of pride that our company was able to render aid at a time when aid was needed. That our efforts were appreciated by those on the train is evidenced by one of them, a San Francisco wholesale carpet executive, who was a passenger. In a letter to our President, Mr. Black, he expressed his thanks and added "It was certainly a grand sight to see that Sno-Cat come up to the train—with the emblem of P G and E. painted on the side! Your crew certainly did a marvelous job and I am sure that everyone on that train feels the same way that I do."

Another letter of appreciation came from D. J. Russell, Southern Pacific's President. "Dear Mr. Black," he wrote, "Further in regard to our several conversations during the Sierra storm, I wish to re-emphasize our appreciation of aid received by us from the Pacific Gas and Electric Co. Won't you please express my sincere thanks to those of your people in the area who helped so much in the 'City of San Francisco' emergency? I wish it were possible for me to thank each one personally and directly, but I am sure that our people on the Sacramento division will do so. In saying this, I speak not only for myself individually but also for all of our officers and men on the ground who received assistance in the rescue work from Pacific Gas and Electric Co. representatives."

Our pride in the achievement is now mixed with sadness due to one who was among the first to reach the stalled train. Jay Gold died a hero's death on January 21, following his valiant efforts of the preceding week. His memory has been honored by the company, which awarded him posthumously its highest decoration for courage—the John A. Britton Gold Medal.

Jay Gold's two buddies, Charley Swing and Roy Claytor, who also played significant roles in the drama, were named to receive the John A. Britton Silver Medal, next highest company award.

Mr. Sutherland, in commenting on the award said, "Jay Gold's contribution was perhaps no greater than that of Charley Swing and Roy Claytor, but he knowingly took a far greater risk, and he gave his life. For these reasons we believe his decoration should fittingly be the highest one possible. . . . Unquestionably the actions of Gold, Swing, and Claytor are exemplary of the highest traditions of P. G. and E. employees in rendering public service. We are proud of 2000 other P. G. and E. men who were battling the elements in the same high spirit."

Now it can be told that only through backbreaking and often heartbreaking toil was water kept flowing into Colfax. On the morning of January 12, the blizzard started the snow drifting and within a matter of hours completely filled the Boardman Canal. Two crews started shoveling and worked continuously until the night of the 14th, with the exception of about eight hours' rest. Through this labor they succeeded in obtaining a flow of only about 2 cubic feet per second, and by this time the Colfax Reservoir was dangerously low. There was sufficient supply in the new steel tank to carry over the emergency, and on the 16th, the crews succeeded in bringing the canal up to its normal input.

Nothing Impersonal

In the little towns high up in the mountains, people don't ask why the company or the service department doesn't hurry up and get the power back on when it fails in a storm. They know it's nothing as impersonal as that. It's Bill and Pete and Ike or Pat who must go out and buck the drifts until the break is found and the lights burn once more.

In Downieville on Monday evening, January 21, there had been no electric service for 11 days. Snow on the streets was between four and five feet deep, and it was bitter cold. The power line gets to Downieville by way of Alleghany, which in turn is fed by a 60,000-volt line from a point near French Canal. This line went out when the storm first hit, and it took ten days with crews working 16 to 20 hours a day to restore service as far as Alleghany.

Then three linemen started out for Downieville on skis to look for the break. They found it in Slug Canyon and struggled on in to Downieville to report five spans down.

So the next morning Foreman Pat Shepherd and his crew left Downieville as soon as it was light enough to see through the blizzard. They carried on their backs 2200 feet (214 pounds) of No. 2 steel-core aluminum cable, rope, hand lines, blocks, and their tools. The snow froze as it drove in their faces, but they struggled on over the tops of three ridges into Slug Canyon. In the summer it's not easy going, but you can make it (without gear) in about an hour and a half. But Pat's crew didn't get there until two o'clock in the afternoon.

Here was a shambles. No power line was visible. An avalanche had taken out five spans of poles and conductors, and somewhere under 35 feet of snow they will remain until summer. But there was one live tree which had been spared. Its branches were stripped and the new aluminum cable was laid out and the tree was used to support the center of a long span. Just before dark they had the ends tied into the existing line and started the long trek back home. Clearance was obtained, and the lights came on in Downieville at 11:21 pm.

The little town blazed with light as a sort of impromptu celebration got started. People turned out to walk the icy streets. Neighbor greeted neighbor. Dogs romped and barked under the street lights. It was better than New Year's Eve. The biggest storm since 1890 was at an end.

And the thanks, freely expressed, for restoration of service were not directed to the company but to Pat and Stan and Bill and Pete.

Power for Freedom

(*Continued from page* 72)

they are having trouble retracing their steps. We must not allow ourselves to be pushed down the same path.

SLATER: Thank you very much, Mr. Gadsby, for bringing us up-to-date on the electric industry.

Friends, you've been listening to Mr. George M. Gadsby, President of the Utah Power & Light Co. and President of the Edison Electric Institute, a leading figure in America's electric light and power industry. He has given us a vivid picture of the place of electric power in the life of a strong America.

Now this is Bill Slater, saying goodbye—and reminding you, wherever you are—whatever you do, in peace and in war, speak up, Americans, . . . *for* America.

Public Service of Colorado Receives Highest of 1951 Freedoms Foundation Awards

IN recognition of its efforts to stimulate interest in the early history of Colorado and the principles upon which the state was founded, Public Service Co. of Colorado has received the highest of the 1951 Freedoms Foundation Awards. Presented on behalf of the foundation by Dr. Robert A. Milliken, the award was accepted by John E. Loiseau, President of Public Service, in a ceremony held last February in Valley Forge, Pa.

Entitled "The Colorado Story," the prize-winning exhibition is a gallery display consisting of 50 panels which picture the development of Colorado from pre-historic Folsom Man until statehood was achieved in 1876. Included in the display are early photographs, etchings, and historic documents in facsimile, as well as original letters and signatures, many of which are actually museum pieces. Material for "The Colorado Story" was gathered from a total of 13 national, state, and city libraries, and from various private collectors of Americana. Dr. LeRoy R. Hafen, Colorado State Historian, assisted development of the display by editing and checking the historical facts contained in the panel captions.

The entire exhibition is designed to be of value to school children, with captions written in simple language suited to the school-age level, and is being made available by Public Service of Colorado to schools throughout the state.

Donor of the award, Freedoms Foundation, was established in March, 1949, as a non-profit, non-sectarian, and non-political organization which encourages citizens to "speak up for freedom."

On display at Monument Circle, Indianapolis, the trailer was inspected by EEI Home Service Committee members and guests. Center is A. C. Crandall, Indianapolis Power & Light.

Indiana Electric Companies Present Trailer-Mounted "Heart Kitchen" to Indiana Heart Foundation

DEMONSTRATING how electric appliances and proper kitchen layout can benefit heart patients, an exhibition trailer containing an all-electric "heart kitchen," so designed that household tasks may be performed with a minimum of physical exertion, was presented to the Indiana Heart Foundation last February 11 through cooperation of the Indiana & Michigan Electric Co.; Indianapolis Power & Light Co.; Public Service Co. of Indiana, Inc.; and Southern Indiana Gas & Electric Co.

Trailer Developed by Ipalco

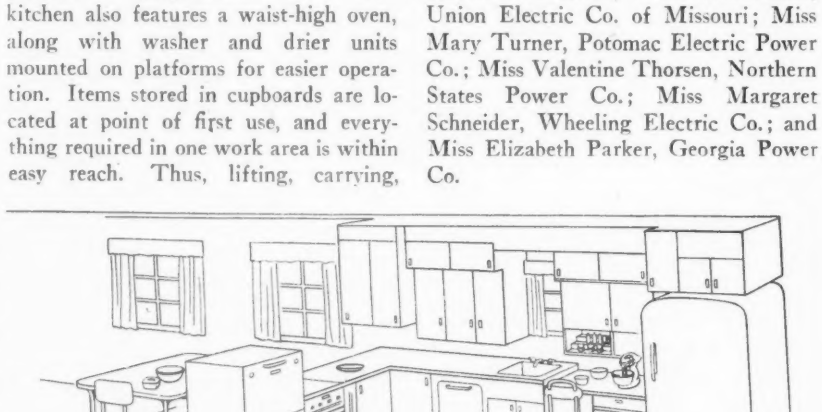
P. W. Ross, Vice President and Assistant to the President, and A. C. Crandall, Vice President in Charge of Sales, Indianapolis Power & Light Co., developed the idea of a trailer-mounted kitchen display, while the details of its planning were carried out by Mrs. Harriet West, Home Service Director, and Mrs. Margaret Sommer, Kitchen Planning Advisor, of the same company.

After being fitted-out at Ft. Wayne, the trailer was placed on exhibition in that city before being brought to Indianapolis, where it was formally presented to the Indiana Heart Foundation by H. T. Pritchard, President of Indianapolis Power & Light, on behalf of the cooperating companies. Accepting the trailer for the foundation were Dr. Kenneth G. Kohlstaedt, President, and T. A. Kleckner, Executive Secretary.

The new kitchen incorporates energy- and time-saving ideas developed from the research of engineers and home economists at Columbia, Cornell, Purdue, and Wisconsin Universities. No shelf in the kitchen is more than six feet from the floor, and all work counters are 36-inches high, except for a table-height, "sit-down" preparation area. The kitchen also features a waist-high oven, along with washer and drier units mounted on platforms for easier operation. Items stored in cupboards are located at point of first use, and everything required in one work area is within easy reach. Thus, lifting, carrying, stooping, and stretching have been minimized in every way possible.

The EEI Home Service Committee arranged its February meeting so that members could inspect the trailer in Indianapolis, where, during National Heart Week, it was stationed in front of the offices of the Indianapolis Power & Light Co. Attracting much favorable comment and publicity, the trailer was visited by approximately 300 people daily, before being removed to Evansville for further public inspection. Later it will be exhibited throughout the state. All persons visiting the display are given a colorfully illustrated folder, which describes equipment used in the kitchen and methods of conserving energy when doing housework.

Shown left to right in the adjoining photograph, guests and members of the EEI Home Service Committee who inspected the trailer were Miss Phyllis Owen, Virginia Electric and Power Co.; Mrs. Sommer; Mrs. West; Miss Edna Stephany, Pennsylvania Power & Light Co.; Miss Jane Grau, Duquesne Light Co.; Mrs. Vera Ellwood, Wisconsin Electric Power Co.; Mr. Crandall, a member of the EEI Commercial Division General Committee; Mrs. Mariquita Dygert, The Detroit Edison Co.; Miss Elizabeth Williams, Monongahela Power Co., Chairman of the EEI Home Service Committee; Miss Ruth Shank, Union Electric Co. of Missouri; Miss Mary Turner, Potomac Electric Power Co.; Miss Valentine Thorsen, Northern States Power Co.; Miss Margaret Schneider, Wheeling Electric Co.; and Miss Elizabeth Parker, Georgia Power Co.



A diagram representing the layout of the "heart kitchen" trailer, which received much favorable publicity and was visited by approximately 300 people daily in Indianapolis.

Operation and Maintenance of Metalclad Switchgear

By R. M. Pennypacker

Superintendent of Substations, Philadelphia Electric Company

A paper presented before the EEI Electrical Equipment Committee, Cincinnati, Ohio, February 12, 1952

METALCLAD switchgear for 2300-v and 13,200-v distribution substations and generating stations on both indoor and outdoor service is now being installed quite extensively throughout the electric utility industry and has many practical applications in industrial installations.

In addition to its economic advantages, in many instances, over concrete and metal cell-type installations, it offers flexibility for future changes or expansion, improvement in safety to personnel, and, to some extent, relative simplicity in maintenance.

Metalclad switchgear, as defined by AIEE (27-102), consists of an indoor or outdoor metal structure containing switching equipment and other associated equipment, such as instrument transformers, busses, and connections, which are insulated and placed in separate grounded metal compartments. The circuit breaker is equipped with self-coupling disconnecting devices and is arranged with a position-changing mechanism for moving it physically (through either vertical or horizontal travel) from connected to test or to disconnected position, after which it may be removed from the stationary structure. Interlocks are provided to insure proper sequence and safe operation during the insertion or withdrawal of the removable element.

The use of this type of equipment has introduced certain changes in operating procedure. Its greatest advantage from the point of view of safety is in the elimination of stick-operated disconnecting switches and their attendant hazard to the operator from exposed energized copper and the possibility of opening disconnects under load.

Another very important safety feature to the operator is the elimination of manually applied safety ground conductors for blocking purposes. Notwithstanding the use of high-voltage detectors and well developed procedure in the use of portable safety grounds, numerous serious accidents and fatalities have occurred to even the most experienced operators in the use of this form of safety grounding. Use of the metalclad grounding device, controlled from a point remote from the cubicle in which it is inserted, protects the operator even though the grounding device has been improperly set up and is closed against a hot bus or line.

The older form of grounding truck is equipped with potential transformers which, if energized when the truck is erroneously inserted into the energized side of the cubicle, prevents closing of the ground switch through an interlocked electrical circuit. However, because of the hazard and inconvenience of using phase sticks for high-voltage phasing-out in the type of metalclad cubicles where the circuit breaker racks in and out vertically, it became necessary to change the form of grounding device to provide for both safe grounding and phasing out. A grounding device was therefore developed without potential transformers but with means for checking for voltage with a high-voltage detector before closing the ground switch and also providing portholes for inserting phase-out sticks. All safety interlocking provisions of the older type were incorporated in the new device. This new type of grounding device has been adopted for both vertically and horizontally racked circuit breakers. However, in the event of failure of a breaker when being pushed or racked into the cubicle, metalclad introduces the possibility of hazard to the operator.

It is the purpose of this discussion to cover in a general manner the maintenance procedure and experience on metalclad switchgear.

The Philadelphia Electric Co. now has in operation a total of 589 metalclad units in generating and substations as follows:

INDOOR — 5 kv—387 C.B. units in 19 stations
15 kv— 22 C.B. units in 4 stations
OUTDOOR — 5 kv (duplex)
—147 C.B. units in 33 stations
15 kv— 33 C.B. units in 4 stations

The term unit as used here means the number of cubicles containing a circuit breaker. Numerous other cubicles in the various installations contain station service transformers, draw-out potential transformers, and supervisory control equipment. The power transformers supplying these groups of metalclad switchgear are also of metalclad construction and connected to the switchgear busses, either directly through metal enclosed connections or by means of underground cable.

Installations are of General Electric, Westinghousee, Allis-Chalmers and ITE manufacture. While a few of the installations are over ten years old, about 80 per cent of this equipment has been in service for five years or less.

On most of the installations, some difficulties, largely of a mechanical nature, were encountered while installing the equipment and subsequently in the early operation of it. In some cases, it was necessary for the manufacturer to make modifications in the design of the breaker-racking mechanism and in certain features of the cubicle proper, and even in the design of some electrical parts of the breakers.

Metalclad switchgear, notwithstanding its advantages in station design and operation, does present problems of maintenance. Its inherent design is such as to limit accessibility for adjustment and repairs to the many mechanical parts which in some instances do not appear to be sufficiently sturdy. Somewhat special techniques had to be devised to satisfactorily maintain this type of equipment.

The circuit breakers, most of which are of the air type, of course, require close attention. All circuit breakers are periodically withdrawn from their cubicles for thorough examination; dressing of contacts; adjustment of moving parts and lubrication, where necessary; tightening of bolted connections; checking operation with travel device; contact resistance measurement; checking control wiring; etc. This work is per-

formed at least annually on most outdoor installations and every two years on indoor 2.4-kv and 4-kv installations.

While the breaker is out of the cubicle, all mechanical parts in the cubicle, including the shutter operating mechanism, are checked. The fixed contacts in the cubicle are examined through a transparent plastic barrier placed over the shutter openings in such a manner as to permit operation of the shutters but to protect the workman from the energized contacts.

In order to make a complete examination and to do work on the circuit breakers, it is necessary to raise them off the floor by means of a portable crane or block and chain.

An attempt is made to perform periodic maintenance on the outdoor circuit breakers only under favorable weather conditions. Weather conditions sometimes change during the course of a job or an emergency condition may arise requiring immediate attention regardless of weather. The breakers, being of the indoor type with exposed cellulose insulation, must be protected against dampness. On some installations a concrete mat extending along the breaker side of the cubicles connects with a control house into which the breaker is moved for overhauling. Waterproof covers must be provided and slipped over the breaker as it is moved out of the cubicle for transporting to the nearby control house as protection against moisture in damp or wet weather.

Where the concrete mat does not connect with a control house or other building, a fixed or portable framework for attachment of a canvas awning with suitable side curtains must be provided for use in inclement weather. The canvas is stored at the station when not in use.

A thorough examination of outdoor cubicles and breakers is made for evidence of moisture to determine if condensation has taken place because of outside temperature changes or admission of water, during rain storms, through the roof hood connections, housing ventilators, or along the doors. Some troubles have been encountered shortly after installation from rain getting into the housing through joints improperly gasketed or caulked by the manufacturer.

Strip heaters are kept in continuous operation throughout the year in each cubicle to prevent condensation. A minimum of 350-w per cubicle is installed.

On indoor installations, automatically controlled station heating is provided to avoid condensation. It is necessary to install heaters, preferably of the motor-driven convection type, at or near floor level for maximum benefit, both for the equipment and for comfort of the personnel when the station is attended.

Formation of ice on the concrete mat in front of the outdoor breaker cubicles and on the cubicle doors sometimes presents considerable difficulty in operation and maintenance. Salt cannot be used too freely on the concrete mat because of its corrosive effect upon the housing metal.

Particular care must be exercised in examining breaker contact support insulators for breakage. These are usually so located as to make thorough examination difficult.

It is important to see that all cable ducts terminating in the cubicles are well sealed to prevent admission of warm air from cable ducts and manholes into the relatively cold cubicles, which would result in condensation.

Some mechanical difficulties have been experienced on contacts of at least one manufacturer.

There have been several recent cases of a broken stop on the racking-in device on 13-kv breakers of one manufacturer, necessitating redesign of the part. These stops allowed breakers to start out again after being racked into full contact.

The horizontal racked-in type of breaker has considerable weight and consequently is somewhat unwieldy to handle both for normal operation and for maintenance. The resulting strain on the racking-in mechanism has resulted in numerous cases of breakage, but the breaker can still be withdrawn from the cubicle. The vertical racked-in type has considerable advantage in weight, but should an elevating chain or worm break while partly racked in, it is likely that considerable disassembly of the affected, as well as adjacent, cubicles will be necessary to free the jammed breaker, with attendant interruption to the entire bus section.

Plates are removed periodically for examination of cable terminations and current transformers. It has not been considered necessary, however, to periodically remove plates for examination of the insulated busses.

The majority of metalclad installations are relatively new; consequently their performance is being observed rather critically.

So far, they show evidence of reasonably reliable performance, but we believe that there is need for considerable further improvement. The manufacturers seem to recognize this fact and have been cooperative in their efforts to improve the electrical and mechanical reliability of this equipment.

Halsey D. Polhemus

HALSEY D. POLHEMUS, Vice President of Jersey Central Power & Light Co. and an officer of the company for 28 years, died on February 9 at Monmouth Hospital, Long Branch, N. J., at the age of 65. Until taken gravely ill shortly before Christmas, he had been active in company, civic, and charitable affairs.

Mr. Polhemus began his utility career in 1924 when he became assistant to the late A. E. Fitkin of A. E. Fitkin and Co., a New York investment house and owner of public utilities throughout the country. After merger of several electric companies in the incorporation of Jersey Central Power & Light, he was named assistant to the president of the company in 1928 and the following year was elected a vice president. Among Mr. Polhemus's responsibilities were supervision of safety, purchasing, personnel department activities, and union-management relations. He would normally have retired under the company's retirement policy last year but, upon request of the board of directors, continued in his official capacity.

Prior to entrance into the utility field, Mr. Polhemus had established himself in newspaper circles. He joined the *Lakewood Times and Journal* in 1903 and later worked for the *Jersey City Journal* and *Newark Star Eagle*. He subsequently became affiliated with the *Asbury Park Press*, serving as reporter, telegraph editor, and city editor, but interrupted his newspaper career in 1920 to become publicity director of the Miami Chamber of Commerce for one season.

Throughout his business career, Mr. Polhemus gave generously of his time to community service, having acted as a member, officer, and organizer of numerous civic and local organizations.

A-C Resistance of Pipe-Cable Systems with Segmental Conductors

A Report on the Joint EEI-AEIC Research Project

ALTHOUGH interest in pipe-type, high-voltage cable systems has increased appreciably in this country since the first installation in 1935, with some 250 miles now in operation at 69 kv or higher, factual knowledge of the a-c resistance characteristic of this type of cable system has, until recent years, been limited.

The heavy circuit capacity requirements usually associated with system developments in this country require relatively larger conductor sizes than are commonly used abroad. With these larger cable sizes, the a-c resistance characteristics are a major factor in determining allowable current-carrying capacity.

Need for Further Investigation

Earlier investigations of the a-c resistance of cable systems installed in steel pipe or conduits were reported by L. Brieger[1] in 1938, by R. J. Wiseman[2] in 1948, and by L. Meyerhoff and G. S. Eager, Jr.,[3] in 1949. Mr. Brieger's work dealt with three-phase secondary mains of 4/0 and 500-mcm size, both leaded and non-leaded, installed in iron pipe. The IPCEA test data reported by Mr. Wiseman were concerned with non-leaded, low-voltage rubber or VC cables of the type commonly installed in power stations and in industrial plants, these cables having concentric stranded conducters. Such stranding ordinarily is not used for high-voltage, pipe-cable systems above 1,000-mcm size, because of relatively high a-c resistance characteristics. Messrs. Meyerhoff and Eager reported resistance data on a limited number of samples of segmental cables in steel pipe. Their test data covered sizes from 1,000 to 2,000 mcm and furnished important information in this range.

The need for further data on segmental-type cables was pointed up by several circumstances. Field tests made in 1948 by one utility revealed an appreciable difference between the effective resistance of two 1500-mcm, pipe-type systems of different cable manufacture but of presumably similar design; in another case, a utility reported higher effective resisance for a 2000-mcm cable of one design than for a 1500-mcm cable of a different design. Concurrently, the Consolidated Edison Co. of New York, Inc., requiring more accurate data in order to determine the final construction details for several new projects scheduled for immediate installation, authorized Electrical Testing Laboratories, Inc., to carry out a series of tests on two 1500-mcm cable samples installed in 8⅝-in. pipe.

It was apparent that utility-sponsored tests would be of appreciable interest to the industry at large. Nevertheless, as these tests would be restricted to a single cable size and limited in scope to meet the utility company's needs, there existed a need for further investigation to evaluate the fundamental design relationships over a range of cable size. It appeared that a correlated study would be of considerable value to the industry and, accordingly, a joint research project was authorized in 1948 by the Edison Electric Institute and the Association of Edison Illuminating Companies to be conducted at ETL and to be coordinated with the work already authorized by the Consolidated Edison Co. of New York, Inc. The research project was carried out under the direction of a joint EEI-AEIC Committee, consisting of C. T. Hatcher, Chairman, W. R. Bullard, A. H. Kidder, L. I. Komives, R. O. Loomis, and J. A. Pulsford.

Cable Manufacturers Participate

Five interested cable manufacturers participated in the joint research project, making substantial contributions by providing cable samples, by supplying supplementary test data obtained in their own laboratories, and by acting as an advisory group during the course of the project. The members of the advisory group were C. A. Adams, W. A. Del Mar, L. F. Hickernell, M. H. McGrath, G. B. Shanklin, V. A. Sheals, and R. J. Wiseman.

Project Objectives

The objectives of the joint research project, developed in meetings of the various parties concerned, were set up as follows:

> To investigate the variation of a-c resistance in pipe of large segmental cables supplied by different manufacturers employing variations in cable design details and in factory treatment; to investigate the relative magnitude of losses in the component parts of pipe-cable systems; and to determine the influence on effective resistance produced by various physical arrangements of the cables in the pipe.

The opportunity was afforded, in the course of the project, to study also the influence on a-c resistance of such miscellaneous design variations as use of enameled conductor strands; use of alloy-coated strands; use of magnetic steel for skid-wires; triplexing of cables in the pipe.

As a part of the program of testing, investigation was made of the effect of various test procedure variations, such as phase sequence of supply current; oil in pipe vs. unfilled pipe; effect of insulation between skid-wires and pipe wall.

The tests conducted at ETL were made on a number of 1500-mcm cable samples representing different manufacturing practice. The results of these tests, supplemented by test data on other cable sizes made available by cable manufacturers, are embodied in AIEE Report No. 52-91, presented at the 1951-1952 Winter General Meeting. This report will appear in Volume 71 of the *AIEE Transactions*.

In pipe-cable systems the total a-c loss, as contrasted with the loss if d-c were following, includes extra losses as follows: extra conductor loss due to skin effect and proximity effect in the con-

1. Impedance of Three-phase Secondary Mains in Non-Metallic and Iron Conduits, L. Brieger. BULLETIN, Edison Electric Institute, New York, N. Y., Feb., 1938, pages 61-6.

2. A-C Resistance of Large Size Conductors in Steel Pipe or Conduit, R. J. Wiseman. *AIEE Transactions*, Vol. 67, Part II, 1948, pages 1745-57.

3. A-C Resistance of Segmental Cables in Steel Pipe, L. Meyerhoff and G. S. Eager, Jr., *AIEE Transactions*, Vol. 68, Part II, 1949, pages 816-29.

ductors; loss in the shield and skid-wires due mainly to induced circulating currents; and a loss occurring in the magnetic pipe material due to hystersis and eddy currents following in the pipe wall.

These extra losses are evaluated in AIEE Report No. 52-91 as resistance increments which add to the conductor d-c resistance to produce the total a-c resistance. Formulas are given in the report for the calculation of the resistance increments corresponding to the conductor extra loss and to the loss in the shield and skid-wire assembly, using generally accepted equations for treating these losses in air and suitably modified for operation in pipe by the use of simple empirical multiplying factors indicated by the total test data available. Empirical equations for calculation of the resistance increment corresponding to the loss in the pipe itself are given. These are developed in a previously published paper, referred to in the report, on the basis that this loss is due, mainly, to eddy current flow.

Three physical arrangements of the cables in the pipe were studied, namely, close triangular, cradled, and wide triangular (spacing limited by pipe I.D.). Interest in the last arrangement arose from consideration of long riser sections in the tunnel installations, and because it represented a limit with respect to spacing. Of these, the cradled arrangement is considered to be most representative for field installations.

It is believed that the equations given in the report allow reasonably correct calculation of the a-c resistance of pipe-cable systems with segmental conductors, and will serve the purpose, facilitating the determination of current carrying capacity.

Comprehensive Program Planned for Annual NCUR Meeting

OPEN to all licensees in the Power Radio Service, the annual meeting of the National Committee for Utilities Radio, J. G. McKinley, Chairman, will be held at the Palace Hotel in San Francisco, Calif., on May 12-14, 1952.

A comprehensive program has been planned for the meeting, which will provide an excellent opportunity for all licensees to become familiar with current developments and to participate in the formulation of activities designed to meet the foreseeable problems of the coming year.

Speakers and Presentations

Among the presentations included in the program will be the annual report of the chairman and an address by Col. Edwin L. White, Chief of the FCC Safety and Special Services Division. L. E. Ludekens will give the Engineering Subcommittee report, which will concern channel splitting, microwave point-to-point services, and 450-mc mobile developments. The Frequency Coordination Subcommittee report will be presented by R. H. Miller and will cover the status of channel usage in the Power Radio Service, "end channel" coordination, 72-mc coordination, and revision of the basic minimum geographic spacing of radio systems. The Operating Practices Subcommittee report, which will deal with proposals for permanent rules governing point-to-point services (microwave), will be read by J. M. Wissenbach.

There will be discussion of proposals for broadening the scope and activity of the Information Subcommittee and a report on the FCDA Conference and current status of CD activities. D. C. Schreiner will present the report of the Special Committee on By-Laws, and action will be taken on recommendations received from regional organizations regarding matters pending before the FCC. In addition to attending special technical sessions, delegates at the annual meeting will elect NCUR officers for the coming year and will have an opportunity to inspect the facilities of several electronic and electric utility companies.

The past year has seen the completion of the final phases of the shift to new frequencies under Part 11 of the Commission's Rules. The generally satisfactory condition in which the Power Radio Service finds itself for the present is due, in a major degree, to the licensee's support given to engineering planning within NCUR.

Mobile radio having become the indispensable tool that it is, it is important to appreciate the fact that the effectiveness of the industry's mobile radio systems is the direct result of cooperation between the licensees in the service, the soundness of technical analysis of problems within NCUR, and close attention of NCUR to technical progress and its relation to or impact on existing radio services.

The work of NCUR and its predecessor Committee C4 under the old Radio Technical Planning Board is responsible for the protection of the mobile radio facilities used in our industry. This means the protection of an investment presently amounting to about 40 million dollars. Considering that this investment is paralleled or exceeded by other users of the radio frequency spectrum and that all users of the radio spectrum face the problem of an increasing number of licensees having to be crowded into a fixed number of available frequencies, it is easy to see why it is vital to the satisfactory operation of our radio systems that the industry continue the excellent support given NCUR activities in the past.

Reservations for the annual meeting should be sent directly to the Palace Hotel, Market and Montgomery Streets, San Francisco, Calif., and notice of attendance should be forwarded to the NCUR Chairman, P. O. Box 1736, Pittsburgh 30, Pa.

Public Relations

(Continued from page 79)

The over-all responsibility for seeing that your public relations objectives are met naturally falls on the chief executive of the company.

For the actual conduct of your public relations program, the president should appoint an experienced executive. In addition he should set up lines of liaison between departments so that all elements can be correlated and coordinated under the public relations executive.

4. Measure the Effectiveness of Your Public Relations Activities. Knowledge of how your public relations stand, now and at any given future time, is extremely important. Checks with various department heads and discussions with field representatives can give you a reasonably accurate indication of your strength and your weak spots.

However, a more comprehensive and scientific yardstick is the public attitude survey conducted and analyzed by an experienced agency.

Recent EEI Publications

Turbines, Condensers and Auxiliaries, Feed-Water Heaters, Evaporators, and Deaerators, 1949

EEI Pub. No. 51-5. A Report by the Turbines and Condensers Subcommittee of the Prime Movers Committee, Edison Electric Institute. 70 pages. Price: $1.20 to members and their employees, $3.00 to non-members, $3.25 to foreign countries.

This report contains statements by operating companies and manufacturers on turbines; turbine operating and outage data; simultaneous unscheduled outages of major plant equipment; condensers, circulating pumps, main condensate pumps, and air removal equipment; and evaporators, deaerators, and feed-water heaters.

A-C Network Operations, 1947—1949

EEI Pub. No. 51-6. A Report of the Transmission and Distribution Committee, Edison Electric Institute. 36 pages. Price: 65 cents to members and their employees, $1.65 to non-members, $1.75 to foreign countries.

In this report, the form of the previous A-C Network Operations Report has been simplified, condensed, and rearranged. Detailed data on established satisfactory equipment and practices, and equipment and practices no longer standard, have been deleted. The data in general relate to problems of current practice and interest only.

Seventy-two companies submitted data on the operations of 309 networks in 151 localities, which were compiled and tabulated for the period 1947 to 1949, inclusive. These data have been summarized and compared with data from previous reports.

Power Station Chemistry, 1951

EEI Pub. No. 51-9. A Report of the Power Station Chemistry Subcommittee of the Prime Movers Committee, Edison Electric Institute. 21 pages. Price: 50 cents to members and their employees, $1.25 to non-members, $1.35 to foreign countries.

This publication contains the following reports: chlorination practices, experience with potassium boiler water treatment, caustic-washing of turbines, turbine lubrication survey, corrosion and failure of boiler handhole gaskets and handhole cap and seat-metal corrosion, laboratory and field testing of inhibited reclaimed insulating oils.

Cable Operation, 1948

EEI Pub. No. 51-10. A Joint Report of the Committee on Power Distribution, Association of Edison Illuminating Companies, and Transmission and Distribution Committee, Edison Electric Institute. 21 pages. Price: 70 cents to members and their employees, $1.75 to non-members, $1.85 to foreign countries.

This report covers operating experience with high-voltage (above 7.5 kv between phases) paper-insulated cable, joints, and terminations during 1948 as reported by 16 contributors who operated a total of more than 15,000 miles of cable.

Farm Wiring Demonstrations for Group Presentation

EEI Pub. No. 51-14. Prepared by the Farm Utilization Committee of the Farm Section, Commercial Division, Edison Electric Institute. 60 pages. Price: 50 cents per copy.

This publication presents the following subjects: I—Basic Principles of Wiring Circuits; II—Principles of Wiring Switches; III—Installing Outlets and Switches; IV—Selection, Operation, and Care of Electric Motors; V—Planning the Farmstead Wiring Layout.

Joint Use of Poles in Rural Areas

EEI Pub. No. 51-19. A Report of the Joint Subcommittee on Joint Use of Poles for Rural Power and Telephone Circuits, Edison Electric Institute and Bell Telephone System. 10 pages. Price: No charge.

This is a final report of the Joint Subcommittee on Joint Use of Poles for Rural Power and Telephone Circuits. The first report consisted of a preliminary issue of Part 5, "Special Considerations for Long Span Joint Use," of the Joint Pole Practices. Pub. No. 51-19 reviews the factors concerned in the relative economies of joint construction vs. separate power and telephone line construction in sparsely settled rural areas, and makes recommendations concerning further joint work on rural joint use matters.

Electric Laundry Equipment Installation Manual

EEI Pub. No. 51-21. A Section of an Appliance Installation Manual Prepared by the Wiring and Specifications Committee, Commercial Division, Edison Electric Institute. 11 pages. Price: 35 cents per copy.

Concerned with the laundry, this section of the Appliance Installation Manual contains recommendations in conformance with the provisions of the National Electrical Code. It is intended as a guide to architects, builders, electrical contractors, utility companies, and home owners contemplating the installation of laundry equipment.

One of the greatest obstacles in the path of expanding use of electrical service is inadequate service entrance and branch circuit wiring. The primary purpose of this section of the Manual is to suggest means by which adequate wiring for laundry equipment may be provided economically.

Electric Range Installation Manual

EEI Pub. No. 51-22. A Section of an Appliance Installation Manual Prepared by the Wiring and Specifications Committee, Commercial Division, Edison Electric Institute. 17 pages. Price: 50 cents per copy.

This section of the Appliance Manual deals primarily with the changing of an existing inadequate service for the accommodation of an electric range and the installation of range circuits in new construction. It is divided into four parts, as follows: Part I—General Wiring Methods of Reasonable Cost, which discusses the more acceptable wiring methods for the various components of service to the range; Part II—Wiring in New Construction, which details minimum size of service entrance and service equipment for modern conditions; Part III—Case Histories of Methods Used Successfully in Revising Existing Inadequate Services; Part IV—Appendix, which contains examples and tables.

Adequate Industrial Wiring

EEI Power Sales Manual, Section VIII—Revised, 1951. 36 pages. Price: $1.00 per copy. Quantity prices on request.

If the power salesman is to be able to determine whether or not industrial wiring may be termed "adequate," he must have a general knowledge of the hazards and the technical and constructional details involved. This publication, in pursuing the above objective, presents such topics as advantages and basic requirements of adequate wiring systems, wiring methods, conductor current-carrying capacity, overcurrent protection, voltage drop, importance of power factor correction, rewiring to increase adequacy, wiring method trends and development, grounding for adequacy, and preventive maintenance.

Poultry House Ventilation

Farm Electrification Manual, Section 17. 6 pages. Price: 25 cents to members, 40 cents to non-members.

(*Continued on page* 93)

Transmission and Distribution Committee Meeting

J. A. Pulsford, *Chairman*

THE winter meeting of the Transmission and Distribution Committee was held on February 14 and 15 at the New Hotel Jefferson in St. Louis, Mo. D. Sanford, Vice President of the Union Electric Co. of Missouri, welcomed the 165 members and guests and urged redoubled efforts to improve economy in transmission and distribution in view of continually rising costs.

Standards and Specifications Group

Activities of the Standards and Specifications Group, sponsored by E. K. Karcher, were reviewed by subcommittee chairmen.

W. P. Holben announced publication of TD-11, "Specifications for Guy Hooks and Guy Strain Plates"; TD-22, "Specifications for Pole Top Pins"; and TD-23, "Specifications for Guy Clamps." A proposed revision of TD-10, "Specifications for Rolled Steel Washers," is about ready to be sent to members for ballot. Work is continuing on proposed new specifications for steel insulator pins with 1⅜-inch lead threads and expansion shields for galvanized lag screws and machine bolts, as well as revisions of several existing hardware specifications which are more than ten years old.

F. A. Ashbaugh reported that balloting is in process on proposed TD-100, "Specifications for Full Length, Non-Pressure, Preservative Treatments of Poles." Completion of proposed specifications for Douglas fir, heavy-duty cross-arms and Douglas fir braces awaits further work on determination of limitations for knot size and location.

R. J. Palmer reported that proposed EEI-NEMA street lighting equipment standards covering poles; materals, finishes, and tests; head and reflector interchangeability; and open reflector mountings have been sent to members for ballot. Work is continuing on proposed standards for luminaire supports, film cutouts, and insulator heads; and others covering controllers and relays, insulating transformers, and nomenclature are contemplated.

W. L. Vest announced publication of TDJ-110, "EEI-NEMA Standards for Distribution Fuse Links." The need for standards covering extremely slow fuses in the low current range will now be investigated.

M. W. Ghen stated that a proposed "EEI-NEMA Fifth Report on Standards for Overhead Type Distribution Transformers" is being sent to members for ballot. This revision covers the entire range of overhead distribution transformers in the pattern established by the existing Fourth Report. Good progress also is being made on proposed standards for network transformers and network protectors.

General Engineering Group

The General Engineering Group, sponsored by J. W. Anderson, featured a session on the use of capacitors in distribution systems. E. A. Fisher stated that unswitched, pole-type capacitors have been used extensively on distribution circuits in St. Louis to improve feeder voltage and reduce feeder and substation loads. Currently scheduled installations will bring the total up to the stability limit under minimum reactive load conditions. Previous unsatisfactory experience with switched capacitors is being re-examined in view of the need for further power factor improvement under peak load conditions.

J. S. Maloy reported that because of the heavy industrial load of the West Penn Power Co. system, most capacitors have been installed to remedy a particular situation. However, the present program calls for more general installation of unswitched capacitors to satisfy minimum reactive load and switched banks to satisfy peak requirements. Tests indicate that the pattern of reactive loads varies so much among circuits of this system that each must be studied individually.

C. Hutchinson presented an economic analysis of the use of secondary capacitors, described available equipment and methods of application, and outlined several examples of operating experience. He concluded that secondary capacitors have a definite place on both underground and overhead systems and that as their economic advantages come to be more widely appreciated, they will be used to carry the base kilovars of the distribution load.

J. W. Anderson described a newly developed taping machine for repairing deteriorated weatherproof conductors. T. C. Duncan described a recent 138-kv, high-pressure oil, pipe-type cable failure. R. N. Harmon of Westinghouse Radio Stations, Inc., described the operation of television receivers with respect to their sensitivity to fluctuations in line voltage.

Underground Group

The Underground Group, sponsored by W. M. Penney, presented a series of papers on cable fault locating methods. J. E. Johnson outlined the three methods currently used in Philadelphia, each of which employs a tracer current. These are cycle alternating current, impulse current, and interrupted direct current. Although reliable, the d-c tracer method is used only when more convenient methods are unsuccessful. W. Sandoz discussed methods used in Detroit. Preliminary megger tests are used to determine the type of fault, wheatstone bridge or capacity bridge measurements are made to determine the approximate location, and the exact location is usually determined by tracer current from a thyratron rectifier or surge generator.

T. C. Duncan outlined the detailed procedure used to locate the 138-kv, pipe-type cable fault described earlier. The phase was determined by Kenotron, the section by high-voltage interrupted d-c, the approximate location within the section by wheatstone bridge, and the exact location by low-voltage tracer current. Test holes were excavated adjacent to the bridge location for the preliminary tracer current readings.

A. Bodicky described a recent multiple fault on shielded, non-leaded cables in an ungrounded 13.8-kv circuit, which caused serious damage to several cables and associated equipment. A color film showing 34.5-kv, low-pressure cable splicing was presented by G. H. Fiedler.

J. J. Pokorny summarized the performance of high-voltage, paper-insulated cable for 1950. The cable failure rate was 5.9 per 100 cable miles, compared with 5.8 in 1949. The total cable and joint trouble rate was 10.4 per 100 cable miles in 1950, compared with 9.8 in 1949.

Safe Design, Construction, and Operation

The session on safety, sponsored by F. W. Nimmer, continued the panel discussion on power tools started at the last meeting.

G. D. Stevens described his company's ladder truck practices. Safety features

include front and rear flasher lights, automatic ignition cutoff when ladder is up, insulators in ladder truss rods, safety belt eyes on fly sections of ladders, adjustable platforms, lock-in provisions at various positions, thorough instruction, and rigid inspection and maintenance.

E. Ewald outlined the use of air compressors by his company. Safety precautions include safety valves to practically close supply if the hose breaks. Another company issues two pairs of safety toes for shoes with each compressor.

W. J. Witte discussed his company's use of motor cranes. Three-ton hydraulic cranes have hydraulically operated outriggers, dead-man control, hydraulic by-pass to prevent over-loading, load lock-in position in the event of engine failure, and precision control.

W. R. Bickel described the use of concrete saws and hydra-hammers used for pavement cutting. J. H. Milbyer discussed the use of excavators. Most of the larger equipment used by his company is rented or the work is performed by contract. H. MacVaugh described an electric hammer operating on a double-solenoid principle. Operators are required to ground the equipment and wear goggles.

G. D. Stevens outlined his company's use of power saws. Both one- and two-man saws are used. One-man electric saws are used in trees, but one man is not permitted to take it into trees alone. Daily inspection and rigid maintenance are practiced.

P. Hodson, of the EEI Accident Prevention Committee, commended the T&D Committee for its continuing attention to safety, emphasizing that successful accident prevention cannot be accomplished by the safety director alone and requires teamwork by all departments.

Overhead Group

The Overhead Group, sponsored by G. H. Fiedler, devoted most of its session to discussion of the use of aluminum conductors.

M. H. Pratt reported that a survey of members showed lack of agreement on the most desirable scale of sizes for overhead-type, all-aluminum conductors above #4/0. Following considerable discussion it was agreed that the number of sizes could be reduced considerably. Thus, the subcommittee assigned to this problem will attempt to devise a new compromise arrangement. A symposium on the use of aluminum conductors followed.

B. Brady stated that the Oklahoma Gas and Electric Co. has used #0 to 477-mcm all-aluminum for urban primaries and secondaries for four years. Some use of 795 mcm now is planned.

D. Burns reported that a study of The Detroit Edison Co. system indicates that regardless of economy, about 83 per cent of the overhead distribution system conductor requirements could be converted to aluminum. Economically, aluminum is preferable only as a substitute for #2 and #0 copper and #6 triplex, self-supporting service drops. These substitutions were initiated about a year ago.

G. A. Ewald stated that the Public Service Electric and Gas Co. began to use 397.5-mcm all-aluminum on its 26-kv subtransmission about five years ago, and he displayed the various connectors used in this application. Last year's shortages brought about the use of 397.5-mcm, covered all-aluminum on the heavier distribution circuits and #6 and #4 triplex service drops. If further substitutions of aluminum become necessary, it will be applied to series street lighting circuits, secondaries, and the smaller primaries in that order.

F. Nimmer reported that the Ohio Edison Co. has used ACSR extensively for rural distribution for many years and now plans to use #4 ACSR for services. No use of all-aluminum is contemplated.

C. E. Topping stated that Consumers Power Co. has also used ACSR for rural distribution for many years. Since 1946 it also has been used for long span urban primaries. Recently #4 and #2 ACSR with weather-resistant covering have been used on secondaries. Neoprene-covered, #3 all-aluminum was tried for services but discontinued because of bulkiness of dead-end ties. ACSR with weather-resistant covering now is being used for services. Mr. Topping also displayed samples of the means of suspending and connecting ACSR for these uses.

General discussion revealed a difference of opinion on the use of armor rods. Many use them throughout while others delete them on short-span construction.

L. P. Works presented a paper and movie describing full scale tests to determine the magnetic movement of overhead conductors due to fault currents where the fault is established and cleared two or more times in rapid succession. Conclusions were that high speed reclosing should not be used on circuits with fault currents high enough to cause substantial conductor movement unless extremely fast clearing also is employed.

Meter and Service Committee Meeting

F. A. Redding, *Chairman*

APPROXIMATELY 60 members and guests were in attendance at the recent joint meeting of the Meter and Service Committee and the AEIC Committee on Metering and Service Methods held on February 6-8, 1952, at the Tutwiler Hotel, Birmingham, Ala. A portion of the morning session on May 6 was devoted to presentations by the meter manufacturers.

F. A. Salmon presented a progress report on test projects being conducted by various companies on corrosion prevention and protective coatings of watt-hour meters, metering equipment, meter enclosures and other service equipment under field conditions.

K. S. Field reported that questionnaires sent to committee members are being analyzed to determine if there is a need for a universal-type service cable. Conferences have already been held with cable manufacturers to determine the possibility of developing universal-type service entrance and service drop cables.

In order to review present practices and preferences of the industry on metering requirements for metalclad switchgear, a questionnaire has been sent to the membership by T. E. Lobeck, sponsor of High-Voltage Installations. At the present time about half the questionnaires have been returned, and the trend thus far shows interest in the subject.

W. H. Farrington presented a progress report on the questionnaires which have been returned to date on the problem of service entrance on low houses. There have been and are being constructed many houses where the highest possible point of attachment for the service drop is eight or nine feet. The re-

port contained four typical illustrations of methods for raising the connection point.

E. A. Brown submitted a report on municipal and state wiring legislation. A report on state commission rules showed that Maine, Missouri, New Jersey, Connecticut, Delaware, Florida, and Utah have indicated that revisions are in progress or anticipated.

C. F. Whitman reported on the National Electrical Code. In order that 480-volt, self-contained meters may be placed on the supply side of the overcurrent device for a-c installations, it is proposed that voltage limits between conductors be raised from 300 to 600 volts. A request is now before the Code Committee recommending that Section 2375, Paragraph E, be amended.

A. B. Craig reported that further study will be given to the question of including in the Code for Electricity Meters a high-voltage insulation test for watthour and demand meters. A new subject assigned to Division 3 at the meeting was Meter Test Periods.

Work is continuing on the subject of Area versus Date Testing, under the sponsorship of J. A. Morris. A further report will be made available at the next meeting.

E. H. Tyson, studying Simplification of Meter Records, has distributed a proposed questionnaire to members for their comments. A new questionnaire will be sent out later in light of these comments, to obtain information on the handling of meter department records by various companies.

MSJ-4, "Standards for Indicating Demand Registers," has been presented to EEI and NEMA for approval as a standard. The specifications for Indicating Thermal Watt Demand Meters has been returned to the meter committees for review and recommendation.

The standard for watthour meter sockets is being studied by the AEIC-EEI-NEMA Joint Committee. The standard for low-voltage current transformers for metering has been returned to the triple joint committee with recommended corrections, which correlate the standard with the current revisions on ASA C-57.

R. G. McCurdy, Deputy Director of the Scientific and Technical Equipment Division of NPA, spoke before the two committees on the organizational set-up of NPA and its procedure in allocating materials which are in short supply. It was evident from the discussion that NPA needs more facts from the electric industry on the numbers of meters needed. S. K. Brown will formulate a questionnaire to be sent to the members requesting more information on meter requirements for 1952.

E. W. Robinson, Operating Vice President of the Alabama Power Co., addressed a special luncheon of the two committees. His talk on the operation of the southern power pool was appreciated by the members, who also expressed their thanks to J. E. Burney for the splendid arrangements he had made for the meeting.

The next meeting of the Meter and Service Committee will be held jointly with the AEIC Committee on Metering and Service Methods on May 5-7, 1952, at the Edgewater Beach Hotel in Chicago.

Electrical Equipment Committee Meeting

J. H. Foote, *Chairman*

THE Electrical Equipment Committee held its 56th meeting at the Netherland Plaza Hotel in Cincinnati, Ohio, on February 11-12. The two day session was attended by approximately 80 members and guests.

R. T. Henry, a former chairman and member of the committee who has retired from the industry since the committee's last meeting, was recognized by members for his long and distinguished service, and a resolution to that effect was prepared and included in the minutes of the meeting.

The program consisted of the presentation of papers, reports, and discussion under the sponsorship of five of the committee's six divisions: Apparatus Troubles, Apparatus and Design, Operation and Maintenance, Utilization, and System Engineering. In accordance with its regular procedure, the committee devoted the first day to a closed meeting for informal discussion of apparatus troubles and other appropriate subjects.

J. H. Foote presented the AIEE-EEI-NEMA Joint Committee on Coordination of Insulation report on standard basic impulse insulation levels from 450 kv to 1050 kv, inclusive, for review and action by the Electrical Equipment Committee. This report represents completion of the first stage of work of the Joint Committee in bringing up to date the report on Standard Basic Impulse Insulation Levels originally published in 1941. Work is continuing on the lower voltage range. After some discussion the Electrical Equipment Committee voted its concurrence with the Joint Committee report. The Joint Committee has proposed presentation of the report at the AIEE summer meeting after the report has been approved by AIEE, EEI, and NEMA.

W. F. Wetmore presented a report by the manufacturers' group of the ASA C-50 Subcommittee on Synchronous Machinery. The report contained the group's short circuit clause proposal stating that turbine generators would withstand without injury single-phase short circuits expressed by the product $I_2^2t = 30$, where I_2 is the per unit negative-phase sequence current and t is the time in seconds. The Electrical Equipment Committee is of the opinion that if this proposal is accepted, it will necessitate additional relaying for protection. The possible effect on service by using additional relaying in place of manual shutdown by the operator was also noted. It is planned to have the manufacturers present a report at the next meeting.

R. G. Meyerand reported on a survey of experience with leased pilot-wire relaying channels. The most frequently mentioned cause of trouble was open circuits in the pairs, caused by telephone company's maintenance. It was stated that other groups have been discussing this problem and related matters pertaining to power company communication services, in which telephone companies are showing increasing interest.

A paper entitled "Effect of Large Wind Tunnel Loads on System Operation" was presented to the committee by J. R. Linders of The Cleveland Electric Illuminating Co. The electric power demand of a load of this nature is considerably greater than that of an average industry customer. Since the rapid pick-up of such a load is a problem, adequate communications between the utility and the customer dispatcher are needed, as well as load control facilities capable of

following the rapid pickup and drop-off of a large load. In making his presentation, Mr. Linders referred to a similar paper, "Electric Power for Jet-Engine Research," included in the February, 1952, issue of *Electrical Engineering*.

R. M. Pennypacker discussed the general subject of operation and maintenance of metalclad switchgear by citing some of the practices and experiences of the Pennsylvania Electric Co. There was considerable interest shown in this subject by the members. Some companies are still hesitant to use metalclad equipment, though others have found it highly satisfactory. However, there are still some problems to be worked out in connection with its operation and maintenance. Mr. Pennypacker's report appears elsewhere in this issue of the BULLETIN.

A description of the telemetering and load control system of the Virginia Electric and Power Co. interconnected with the Carolina Power & Light Co. and the Appalachian Electric Power Co. was presented by G. M. Tatum of Virginia Electric and Power Co.

J. O. Lang presented a paper, "Remote Control and Telemetering on the System of the Dayton Power and Light Co." in which he described the use of remote control and telemetering on a medium-sized power system. Of a total of 50 substations on this system, 12 are remotely controlled, ten are controlled manually, and 28 are automatic. Seventy-three telemeters supply indicators from 57 circuits. The paper described two different installations, one in the Dayton area and the other in an outlying area. In the Dayton area, control cables are used, whereas in the outlying area, power-line carrier channels were found to afford greater economy in capital expenditures.

The AIEE Project Committee report on "Temperature Correlation in the Connection of Insulated Wires and Cables in Metalclad Switchgear" was submitted for review by the members. Work of this group has cleared up questions which had been raised on AIEE Standards No. 20—Low Voltage Air Circuit Breakers and No. 27—Metal Enclosed Switchgear, relating to permissible terminal temperatures to which wires and cables connect. Also, proposed temperature rises for circuit breakers and switchgear are now acceptable. The former objection of the Electrical Equipment Committee on terminal temperatures was met by setting the maximum terminal temperature rises at 30 C above an inside ambient of 55 C and 45 C above an outside ambient of 40 C. The report will now go to AIEE for publication on a one year trial basis.

The next meeting of the Electrical Equipment Committee will be held at the Edgewater Beach Hotel in Chicago on May 5-6, 1952, in conjunction with the other engineering committees of the Institute. Joint meetings are planned with the Prime Movers Committee and the Transmission and Distribution Committee to discuss subjects of common interest.

Prime Movers Committee Meeting

G. V. Williamson, *Chairman*

EIGHTY members and guests of the Prime Movers Committee convened on February 4-5 at Read House in Chattanooga, Tenn. The meeting was highlighted by subcommittee reports and round table discussions covering power plant operating problems and trends in the design of future stations.

With modern power generating stations operating at pressures and temperatures requiring equipment of special alloy steels, the committee is seriously concerned over the availability of certain metals. In line with this, H. A. Wagner discussed recent developments in the national emergency allocation program with respect to alloys necessary to the electric industry.

C. W. E. Clarke, Chairman of the Gas Turbines Subcommittee, submitted a report on the current status of gas turbines. Of particular interest was a review of the operating experience of several of such machines in service at the present time.

The round table discussion, conducted by J. M. Driscoll, contributed greatly to the success of the meeting, with operating experiences and practices being discussed by representatives of over 60 electric power generating and engineering organizations. The effectiveness of the committee meetings as a medium of exchange of practices and procedures of different companies in the industry is a primary factor in the service of the committee.

The design round table discussion was conducted by J. M. Drabelle, who was assisted by a panel composed of R. W. Parkinson, H. Weisberg and H. A. Wagner. The topics discussed concerned methods of obtaining optimum economies in power plant investments. This subject is of particular moment at the present time when power systems are rapidly expanding, notwithstanding high material and labor costs. Trends in economics and design which will affect power plants of the future were also cited.

H. A. Wagner advised the committee that Dr. A. E. White, for the past 20 years Chairman of ASTM Subcommittee No. 22 on high-temperature metals, is retiring. In appreciation of his long years of service in the field of metallurgy and his contributions to the industry, the committee unanimously adopted a resolution expressing gratitude to Dr. White.

EEI Publications

(*Continued from page* 89)

"Poultry House Ventilation" discusses a problem common to nearly all poultrymen, presenting reasons for ventilation, and methods by which the problem may be solved. The subjects covered apply to fan location for forced air ventilation, exhaust duct, air inlets, difficulties which may be encountered, corrective measures which may be taken, and selection of the fan and motor.

Standards and specifications published by the Edison Electric Institute during 1951 include the following:

AEIC-EEI-NEMA Standards for Metering Current Transformers for Primary Circuits

EEI Pub. No. MSJ-3, NEMA Pub. No. 106-1951, February, 1951. 8 pages. Price: 10 cents per copy.

AEIC - EEI - NEMA Standards for Test Blocks and Cabinets for the Installation of Self-Contained "A" Base Watthour Meters

EEI Pub. No. MSJ-8, NEMA Pub. No. 103-1951, September, 1951. 12 pages. Price: 50 cents per copy.

Specifications for Guy Hooks and Guy Strain Plates

EEI Pub. No. TD-11, 1951. 8 pages. Price: 10 cents per copy.

Specifications for Pole Top Pins

EEI Pub. No. TD-22, 1951. 8 pages. Price: 10 cents per copy.

PERSONALS

R. G. RINCLIFFE has been elected President of the Philadelphia Electric Co., succeeding H. B. BRYANS, who has retired. A veteran of nearly 45 years in the public utility field, Mr. Bryans will now become a Vice President and member of the Board of Directors of United Engineers and Constructors, Inc.

MR. RINCLIFFE

MR. BRYANS

A graduate of Yale University and Massachusetts Institute of Technology, Mr. Rincliffe joined Philadelphia Electric in 1923 as an engineering assistant. Progressing through various positions, including superintendent of gas manufacturing, manager of electric generating stations, and vice president in charge of electric operations, he became a director and executive vice president in 1950. Mr. Rincliffe is a vice president of the Pennsylvania Electric Association and is active in numerous civic and industry associations.

Following graduation from the University of Pennsylvania in 1907, Mr. Bryans joined the Kansas City Gas Co., returning to Philadelphia in 1912, where he inspected and appraised electric and gas properties for the United Gas Improvement Co. In 1914 he became engineer of the Counties Gas & Electric Co. at Norristown, directing his attention primarily to development of electric facilities in line with the expansion characteristic of the industry at that time. In 1927 he was named general superintendent of the Philadelphia Suburban-Counties Gas & Electric Co. and the following year was made assistant general manager.

Mr. Bryans has been with the Philadelphia Electric Co. since 1928. He was elected vice president in charge of operations in 1929, executive vice president in 1938, a director in 1940, and president in 1947. Throughout his career, he has been active in civic, cultural and industry organizations, and is a member of the EEI Executive Committee.

F. R. MCMEEKIN, Operating Manager, has been named a Vice President of the South Carolina Electric and Gas Co., and W. J. READY, Controller, will become a member of the Board of Directors.

After graduating from Clemson College in 1923, Mr. McMeekin was employed by the Westinghouse Electric Manufacturing Co. and two years later joined a South Carolina Electric and Gas predecessor company as electrical dispatcher. Advancing to chief dispatcher and, in 1935, superintendent of transmission, he was named electrical engineer for South Carolina Electric and Gas in 1944. In 1947 he became superintendent of power and in 1950, manager of production and transmission. In 1951 he rose to operating manager, with supervision over all operations of the electric, gas, and transportation departments.

Following his graduation from the University of South Carolina, Mr. Ready was a member of the firm of Ready and Ready, certified public accountants, for ten years. He joined the Accounting Department of a predecessor of South Carolina Electric and Gas in 1925, where he served in various accounting positions, including supervisor of general accounting, until he assumed the title of controller.

ROBERT G. ELY has been elected Vice President in Charge of Sales of The Connecticut Light and Power Co., and ALBERT S. JOURDAN has been named Vice President in Charge of Employee Relations.

A graduate of Cornell University, Mr. Ely became associated with Public Service Electric and Gas Co. in 1926, and for some years directed sales work for the company. In 1951 he joined Connecticut Light and Power as director of sales. Active in committee work of the Edison Electric Institute, Mr. Ely served as vice chairman of the EEI Commercial Division General Committee from 1949 to 1951 and as chairman of the EEI Industrial Power and Heating Section during the same period. He was a member of the latter section from 1941 to 1951.

Manager of the company's central division at Meriden since 1939, Mr. Jourdan began his utility career in 1910 and served as manager at Branford, Waterbury, and New Britain. In 1925 he was made assistant to the vice president and then became manager at Meriden.

A. D. ROOT, Vice President and Treasurer, Pennsylvania Power & Light Co., has been named Financial Vice President. FRANK H. MARKLEY, Assistant Treasurer, has been appointed Treasurer, and ROBERT R. FORTUNE has been made Assistant Treasurer succeeding Mr. Markley. In addition to continuing in his present capacity as Assistant to the President, EVERETT L. PALMER has assumed new duties as Secretary, and HAROLD J. FLOOD, Chief of the Stockholders' Section, has been promoted to Assistant Secretary.

Prior to joining Pennsylvania Power & Light in 1945, Mr. Root served for 25 years in financial consulting capacities with Ebasco Co. and its predecessors.

Mr. Palmer became associated with PP&L in 1923 as first member of the company's training course. In 1925 he entered the general commercial department, in 1927 was named assistant to the general commercial manager, and in 1940 was promoted to manager of the rate and contract department. In 1946

he became assistant to the operating manager and a year later, assistant to the president.

Mr. Markley has spent most of his business career with PP&L, having served in the company's accounting department during the past 27 years. Assistant treasurer since 1945, he has been in charge of the company's accounting for the last six years.

Mr. Fortune joined the company in 1948 as a member of the accounting division staff. Prior to that he had been in-charge accountant for Haskins & Sells, the firm which makes PP&L's annual audits.

Mr. Flood joined PP&L in 1946, handling stockholder relations. Previously he had been active in similar work for a group of utilities and prior to 1926 had been employed several years by two of the nation's leading banks.

WALTER E. OLSON, E. K. THORGAARD, and F. J. OWENS have been appointed Vice Presidents of Northern States Power Co.

Mr. Olson, executive assistant to the company's president since 1941, joined NSP after six years as secretary-manager of the North Central Electric Association.

Minneapolis division manager since July, 1951, Mr. Thorgaard will continue in this post in addition to his new duties as vice president. He joined the company in 1923 as an electrician's helper and later held various positions in the sales organization, becoming manager of the St. Cloud division in 1945.

In addition to serving as vice president, Mr. Owens will continue as manager of the St. Paul division, a post which he has held since September, 1951. Becoming affiliated with Northern States Power in 1933 as a clerk, he held several accounting positions before being appointed assistant manager of the Fargo division. On his return from four years with the Army in World War II, he became assistant to the manager of the St. Paul division.

FRANK W. WOMER, Manager of the Central and Southern divisions, Pennsylvania Electric Co., has been elected Vice President of the Northwestern division at Erie. In other changes, the company announced appointment of WILLIAM J. UTTS as Manager of the newly formed Southern division at Johnston and ROYAL A. PICKUP as Manager of the enlarged Northern division at Oil City.

Associated with Penelec for 38 years, Mr. Womer began his utility career in the meter department of the old Penn Public Service Corp. in 1914. He later became shop foreman and meter engineer before being named division manager at Indiana in 1922. He was made Southern division manager in 1943, after serving as district manager at Somerset and Johnstown, and in 1944 was named manager of the Central and Southern divisions, the position he held until election as vice president.

Mr. Utts entered the employ of the Penn Public Service Corp. as district supervisor in 1920 after graduation from Pennsylvania State College. After serving as district manager in various locations, he was made assistant division manager at Clearfield in 1944 and manager of the Central and Southern divisions in 1945.

Mr. Pickup, a graduate of Bliss Electrical School, joined Penelec in 1923. He was made district manager at Corry in 1924 and at Meadville in 1926. In 1942 he was named assistant division manager at Erie; in 1944, district manager at Oil City; and in 1946, Keystone division manager.

THOMAS BURNS, Executive Engineer in the Commercial Department, American Gas and Electric Service Corp., has retired after over 50 years in the engineering field. A graduate of the Daniel Stewart and Heriot Watt Colleges in Edinburgh, he began his career as an apprentice in the British Admiralty marine engineering works in Scotland and later served in the British Navy.

Before coming to the United States, Mr. Burns was engaged in public utility plant engineering both in Europe and Canada. Early in 1914 he joined the New England Power Co. as manager of its Connecticut division. After service in World War I, he became associated with Vaughan Engineers, who specialized in power plant design and construction.

In 1924 he was appointed power engineer for the Wheeling Electric Co. and later served as chief power engineer for The Ohio Power Co. before becoming executive engineer for AG and E in New York. During 1942-44, he was a consulting industrial engineer for WPB and later special assistant to General Robert Johnson, Chairman of the Smaller War Plants Corp.

Mr. Burns was one of the original members of the EEI Industrial Power and Heating Committee from the time of its formation in 1933 through 1943. In 1944, when the committee was expanded to the status of a section, he became a member of the Competitive Service Committee, which he served as chairman from 1947-49. He remained a member of the Industrial Power and Heating Section through 1951 and was chairman of its all-important Editing Committee from 1941-51. He is co-author of the Power Sales Manual section on "Motor Applications and Controls."

MISS JANE GRAU has been named Home Service Director of the Duquesne Light Co., succeeding MRS. ANNE SUTTER, who has retired after 17 years with the company.

After graduating from Heidelberg College, Miss Grau joined Duquesne in 1943 as a demonstrator in Utility Hall and since then has been engaged in conducting classes in appliance use, canning, cooking, and nutrition before church groups, women's clubs, and schools. She recently became a member of the EEI Home Service Committee.

Mrs. Sutter became associated with Duquesne in 1935 as a Utility Hall staff member and one year later was named home service director. Active in civic and industry organizations, she served, until her retirement,, as a member of the EEI Home Service Committee.

FORD W. HARRIS, recently appointed Chief Engineer of Central Maine Power Co., will assume charge of the company's major construction projects in his new post and continue to serve as agent and engineer for the Union Power Co. and Androscoggin Reservoir Co. A graduate of Rensselaer, Mr. Harris was associated for 12 years with the State Engineer of New York, supervising construction on the Mohawk River. He also served as construction engineer in building three hydro stations for the St. Lawrence Valley Power Co.

RALPH J. PHILLIPS, Engineer in Charge of Gas Sales, San Diego Gas & Electric Co., has been appointed to the newly created position of Manager of Sales. With the company for 25 years, Mr. Phillips has served in various capacities and in his new post will exercise functional control over the company's electric and gas sales departments.

CONVENTIONS AND MEETINGS

1952

APRIL

2-4 Missouri Valley Electric Association Engineering Conference, President Hotel, Kansas City, Mo.
3 PIP Steering Committee, Hotel Blackstone, Chicago, Ill.
3-4 Indiana Electric Association, Young Men's Utility Conference, Ft. Wayne, Ind.
4 Maryland Utilities Association, Lord Baltimore Hotel, Baltimore, Md.
4 National Association of Electric Companies, Conrad Hilton Hotel, Chicago, Ill.
6-8 IES Southwestern Regional Conference, Hotel Tulsa, Tulsa, Okla.
7-9 EEI-AGA National Conference of Electric and Gas Utility Accountants, Hotel Commodore, New York, N. Y.
7-10 EEI Transportation Committee, Jointly with AGA Motor Vehicle Committee, Hotel Benjamin Franklin, Philadelphia, Pa.
8-10 Oklahoma Utilities Association, Southwestern Gas Measurement Short Course, North Campus of Oklahoma University, Norman, Okla.
17 EEI Industrial Relations Committee, EEI Headquarters, New York, N. Y.
17 PIP Mid-Atlantic Group, Atlantic City, N. J.
17-18 Pacific Coast Electrical Association Administrative Services Section Conference, Los Angeles, Calif.
20-22 Rocky Mountain Electrical League, Spring Conference, Shirley Savoy Hotel, Denver, Colo.
20-22 IES Southern Regional Conference, Hermitage Hotel, Nashville, Tenn.
20-22 Controllers Institute of America, Eastern Conference, Hotel Berkeley-Carteret, Asbury Park, N. J.
21-23 Southeastern Electric Exchange Annual Conference, Boca Raton Hotel, Boca Raton, Fla.
22-23 PEA Hydraulic Power Committee Spring Meeting, Penn Harris Hotel, Harrisburg, Pa.
24-25 Pacific Coast Electrical Association Business Development Section Conference, Hotel Huntington, Pasadena, Calif.
28-30 AGA Accounting Section, Materials and Supplies Committee, Memphis, Tenn.
28-30 U. S. Chamber of Commerce, 40th Annual Meeting, Washington, D. C.
30-May 2 IES Canadian National Conference, Hotel General Brock, Niagara Falls, Ont.

MAY

1-2 PEA Communications Committee, Americus Hotel, Allentown, Pa.
5-6 EEI Electrical Equipment Committee, Edgewater Beach Hotel, Chicago, Ill.
5-6 EEI Prime Movers Committee, Edgewater Beach Hotel, Chicago, Ill.
5-6 IES Regional Conference, Hotel Statler, Cleveland, Ohio
5-7 EEI Accounting Division, Advisory and Managing Committee, Hershey Hotel, Hershey, Pa.
5-7 EEI-AEIC Meter and Service Committees, Edgewater Beach Hotel, Chicago, Ill.
6-7 EEI Transmission and Distribution Committee, Edgewater Beach Hotel, Chicago, Ill.
6-7 EEI Hydraulic Power Committee, Edgewater Beach Hotel, Chicago, Ill.
6-9 NEMA 4th International Lighting Exposition and Conference, Auditorium, Cleveland, Ohio.
7 ECAP Copy Group Meeting, Minneapolis, Minn.
7 EEI Commercial Electric Cooking Conference, Sheraton Hotel, Chicago, Ill.
7-9 Northwest Electric Light and Power Association, Engineering and Operation Section, Rainbow Hotel, Great Falls, Mont.
8-9 PEA Relay Committee Spring Meeting, Lawrence Hotel, Erie, Pa.
8-9 PUAA Annual Convention, Hotel Radisson, Minneapolis, Minn.
8-10 Controllers Institute of America, Pacific Coast Conference, St. Francis Hotel, San Francisco, Calif.
11-14 EEI Purchasing and Stores Committee, Roosevelt Hotel, New Orleans, La.

1952

MAY

12-13 EEI Power Station Chemistry Subcommittee of Prime Movers Committee, Sheraton-Cadillac Hotel, Detroit, Mich.
12-14 Northwest Electric Light and Power Association, Business Development Section, Chinook Hotel, Yakima, Wash.
15-16 PEA Electrical Equipment Committee, Hotel Roosevelt, Pittsburgh, Pa.
19-21 Northwest Electric Light and Power Association, Personnel Section, Vancouver Hotel, Vancouver, B. C.
21-23 IES Regional Conference, Webster Hall Hotel, Pittsburgh, Pa.
22-23 Northwest Electric Light and Power Association, Accounting and Business Practice Section, Medford Hotel, Medford, Ore.
22-23 PEA Transmission and Distribution Committee, Irem Temple Country Club, Dallas, Tex.
22-23 EEI Accident Prevention Committee, Indianapolis Athletic Club, Indianapolis, Ind.
25-27 Controllers Institute of America, Midwestern Conference, Netherland Plaza Hotel, Cincinnati, Ohio.
28 PIP Mid-Atlantic Group, Rochester, N. Y.
28-29 PEA Prime Movers Committee Spring Meeting, Tidewater Inn, Easton, Md.

JUNE

2 EEI Industrial Relations Committee, in conjunction with EEI Annual Convention, Cleveland, Ohio.
2-4 EEI 20TH ANNUAL CONVENTION, Cleveland, Ohio.
8-12 National Association of Electrical Distributors, 44th Annual Convention, Atlantic City, N. J.
11-13 Pacific Coast Electrical Association Annual Convention, Hotel del Coronado, Coronado, Calif.
15-19 ASME Semi-Annual Meeting, Sheraton Gibson Hotel, Cincinnati, Ohio.
16-20 ASCE, Denver Convention, Denver, Colo.
19-20 IES Regional Conference, Hotel Preston, Swampscott, Mass.
19-30 ASME Applied Mechanics Division Conference, Pennsylvania State College, State College, Pa.
22-25 Michigan Electric Light Association, Annual Convention, Mackinac Island, Mich.
23-27 AIEE Summer General Meeting, Hotel Nicollet, Minneapolis, Minn.
23-27 American Society for Testing Materials, Annual Meeting, 50th Anniversary, Hotels Statler and New Yorker, New York, N. Y.
23-27 ASME Oil and Gas Power Division Conference, Hotel Statler, Buffalo, N. Y.
30-July 2 Canadian Electrical Association Annual Convention, Banff Springs Hotel, Banff, Alba.

AUGUST

19-22 AIEE Pacific General Meeting, Phoenix, Ariz.

SEPTEMBER

3-13 American Society of Civil Engineers, Centennial Celebration, Chicago, Ill.
5-6 Maryland Utilities Association, Cavalier Hotel, Virginia Beach, Va.
7-10 Rocky Mountain Electrical League Fall Convention, Colorado Hotel, Glenwood Springs, Colo.
8-12 Illuminating Engineering Society National Technical Conference, Edgewater Beach Hotel, Chicago, Ill.
18-19 PIP Annual Workshop Conference, Edgewater Beach Hotel, Chicago, Ill.

OCTOBER

1-3 Wisconsin Utilities Association Convention of Technical and Sales Sections, Schroeder Hotel, Milwaukee, Wis.
5-8 Controllers Institute of America, Annual Meeting, Hotels Sheraton, Cadillac and Statler, Detroit, Mich.
13-17 AIEE Fall General Meeting, New Orleans, La.
27-30 AGA Annual Convention, Atlantic City, N. J.

EDISON ELECTRIC INSTITUTE OFFICERS AND COMMITTEES

OFFICERS

G. M. GADSBY, *President*.....Utah Power & Light Co., Salt Lake City, Utah
B. L. ENGLAND, *Vice President*.....Atlantic City Electric Co., Atlantic City, N. J.
H. S. BENNION, *Vice President and Managing Director*....420 Lexington Avenue, New York, N. Y.
H. S. SUTTON, *Treasurer*.....Consolidated Edison Co. of New York, Inc., New York, N. Y.

BOARD OF DIRECTORS

(Terms Expiring 1952)

W. C. BECKJORD.....The Cincinnati Gas & Electric Co., Cincinnati, Ohio
H. B. BRYANS.....Philadelphia Electric Co., Philadelphia, Pa.
H. C. CUMMINS.....Northern States Power Co., Minneapolis, Minn.
CHAS. B. DELAFIELD.....Consolidated Edison Co. of New York, Inc., New York, N. Y.
W. G. B. EULER.....Pacific Gas and Electric Co., San Francisco, Cal.
J. G. HOLTZCLAW.....Virginia Electric and Power Co., Richmond, Va.
F. C. KELLOGG.....Pioneer Service & Engineering Co., Chicago, Ill.
C. E. KOHLHEPP.....Wisconsin Public Service Corp., Milwaukee, Wis.
P. H. MCCANCE.....Duquesne Light Co., Pittsburgh, Pa.
R. E. MOODY.....Union Electric Co. of Missouri, St. Louis, Mo.
IRWIN L. MOORE.....New England Electric System, Boston, Mass.
A. T. O'NEILL.....Niagara Mohawk Power Corp., Buffalo, N. Y.
HAROLD TURNER.....The Ohio Power Co., Canton, Ohio
G. W. VAN DERZEE.....Wisconsin Electric Power Co., Milwaukee, Wis.
FRANK M. WILKES.....Southwestern Gas & Electric Co., Shreveport, La.

(Terms Expiring 1953)

A. M. BEEBEE.....Rochester Gas and Electric Corp., Rochester, N. Y.
C. P. CRANE.....Consolidated Gas Electric Light and Power Co. of Baltimore, Baltimore, Md.
E. W. DOEBLER.....Long Island Lighting Co., Mineola, N. Y.
M. F. GILL.....Kansas Gas and Electric Co., Wichita, Kan.
N. B. GUSSETT.....Iowa Power & Light Co., Des Moines, Iowa
D. S. KENNEDY.....Oklahoma Gas and Electric Co., Oklahoma City, Okla.
L. M. KLAUBER.....San Diego Gas & Electric Co., San Diego, Cal.
R. H. KNOWLTON.....The Connecticut Light & Power Co., Hartford, Conn.
E. L. LINDSETH.....The Cleveland Electric Illuminating Co., Cleveland, Ohio
J. W. PARKER.....The Detroit Edison Co., Detroit, Mich.
H. T. PRITCHARD.....Indianapolis Power & Light Co., Indianapolis, Ind.
K. M. ROBINSON.....The Washington Water Power Co., Spokane, Wash.
L. V. SUTTON.....Carolina Power & Light Co., Raleigh, N. C.
H. C. THUERK.....New Jersey Power and Light Co., Dover, N. J.
W. O. TURNER.....Louisiana Power and Light Co., New Orleans, La.

(Terms Expiring 1954)

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HARLLEE BRANCH, JR.....Georgia Power Co., Atlanta, Ga.
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